



49
617-53-05

J82
23



Library
of the
Academy of Medicine,
Toronto.
749



100

100

Per.

VOL. XXIII.—1908.

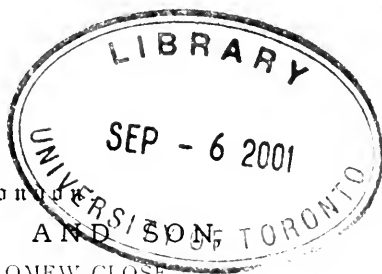
THE
JOURNAL OF LARYNGOLOGY
RHINOLOGY, AND OTOTOLOGY;

AN ANALYTICAL RECORD OF CURRENT LITERATURE

RELATING TO

THE THROAT, NOSE, AND EAR.

PUBLISHED MONTHLY.



London
ADLARD AND SONS,
BARTHOLOMEW CLOSE.

ENTERED AT STATIONERS' HALL.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Founded in 1887 by **MORELL MACKENZIE** *and* **NORRIS WOLFENDEN.**

EDITORS :

JOHN MACINTYRE, M.B., M.Ch., F.R.S.E.
DUNDAS GRANT, M.A., M.D., F.R.C.S.Eng.
ARTHUR SANDFORD, M.D., M.Ch.R.U.I.
W. MILLIGAN, M.D., M.Ch.

WITH THE CO-OPERATION OF

DRS. PRICE-BROWN (*Toronto*), CARTAZ (*Paris*), BRYSON DELAVAN (*New York*),
DODD (*Chicago*), DONELAN (*London*), CLAYTON FOX (*London*),
J. S. FRASER (*Edinburgh*), GRAY (*Glasgow*), GUTHRIE (*Liverpool*), GRAZZI (*Florence*),
HICGUET (*Brussels*), MIDDLEMASS HUNT (*Liverpool*), HUTCHISON (*Brighton*),
JOAL (*Paris*), KELLY (*Glasgow*), LACQARRET (*Toulouse*), LICHTWITZ (*Bordeaux*),
LIEVEN (*Aix-la-Chapelle*), DAN MCKENZIE (*London*), JOHN N. MACKENZIE (*Baltimore*),
PROF. MASSEI (*Naples*), MCCALL (*Bournemouth*), MEYJES (*Amsterdam*),
MYLES (*New York*), HOLGER MYGIND (*Copenhagen*), CHICHELE NOURSE (*London*),
PORTER (*St. Louis*), W. G. PORTER (*Edinburgh*), KNOWLES RENSHAW (*Manchester*),
SACHS (*Hamburg*), SAJOUS (*Philadelphia*), SENDZIAK (*Warsaw*),
LINDLEY SEWELL (*Manchester*), SOTA (*Seville*), STCLAIR THOMSON (*London*),
PURVES STEWART (*London*), HUNTER TOD (*London*), ALEX. TWEEDIE (*Nottingham*),
WOODS (*Dublin*), WYLIE (*London*), MACLEOD YEARSLEY (*London*),
AND ZIEM (*Dantzic*).

LIST OF PLATES.

	TO FACE PAGE
PLATE. TO ILLUSTRATE PAPER BY DR. J. G. CONNALL ON ABNORMAL PULSATING VESSELS IN PHARYNX	131
PLATE OF PORTRAIT OF THE LATE PROFESSOR VON SCHRÖTTER	233
PLATE. TO ILLUSTRATE DR. EMREICH VON NAVRATIL'S CONTRIBU- TION TO THE SURGICAL TREATMENT OF LARYNGEAL STENOSIS	247
PLATE. TO ILLUSTRATE PAPER BY MR. W. G. PORTER ON SOME REMARKS ON KERATOSIS LARYNGIS CIRCUMSCRIPTA	311
PLATE. TO ILLUSTRATE PAPER BY MR. J. S. FRASER ON CHRONIC INFLAMMATORY ŒDEMA OF THE SUBMUCOUS TISSUES OF THE NOSE.	404, 406, 408
PLATES. TO ILLUSTRATE PAPER BY MR. A. S. UNDERWOOD ON SOME RECENT RESEARCHES ON THE ANATOMICAL AND PATHO- LOGICAL CONDITIONS OF THE MAXILLARY SINUS IN RELATION TO THE TEETH	620, 621
PLATES. TO ILLUSTRATE PAPER BY DRS. SARGNON AND BARLATIER ON LARYNGOSTOMY	650, 652

ILLUSTRATIONS IN TEXT.

	PAGE
TEMPERATURE CHART TO ILLUSTRATE DR. PERCY JAKINS' CASE OF MENINGITIS IN TUBERCULOUS SUBJECT SUBSEQUENT TO MASTOID OPERATION	35
FIGURES TO ILLUSTRATE PAPER BY MR. J. S. FRASER ON CHRONIC INFLAMMATORY ŒDEMA OF THE SUBMUCOUS TISSUES OF THE NOSE	404, 409
FIGURES TO ILLUSTRATE PAPER BY DR. GUISEZ ON ACTUAL RESULTS OF (ESOPHAGOSCOPY	461, 462, 471, 472, 473
FIGURES TO ILLUSTRATE PAPER BY DRS. SARGNON AND BARLATIER ON LARYNGOSTOMY	477, 481
TEMPERATURE CHART TO ILLUSTRATE DR. STUCKY'S CASE OF SEPTIC THROMBOSIS OF CAVERNOUS SINUS	533
FIGURES TO ILLUSTRATE PAPER BY MR. THOMAS GUTHRIE ON TWO POINTS IN THE DEVELOPMENT OF THE MIDDLE EAR	542, 543
DIAGRAM TO ILLUSTRATE PAPER BY MR. NORMAN PIKE ON AN EXAMINATION INTO THE CONDITION OF THE VESTIBULAR APPARATUS IN CASES OF DEAFNESS OF NON-SUPPURATIVE ORIGIN	601

THE
JOURNAL OF LARYNGOLOGY.
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

RETROSPECT OF LARYNGOLOGY, 1907.

A STUDY of the reports of the laryngological associations and of original communications published in the different medical journals throughout the world will show that much earnest work has been done during the past year. Although most of the records deal with the clinical nature of the subject, it must not be supposed that etiology and pathology have been overlooked because results of valuable research have been recorded in these directions. Speaking broadly, however, a great part of the literature will be found to consist of cases specially discussed with a view to diagnosis and treatment.

As usual we have had many new instruments presented and many more modifications of old ones, while a good many new therapeutic formulas have been suggested if many new drugs have not been introduced. Altogether, although nothing of phenomenal interest has to be recorded, we may review the literature of 1907 with great satisfaction, inasmuch as it shows earnest study and determination on the part of surgeons engaged in this special branch to place the study of laryngology on a higher level than in the past.

Speaking of the clinical aspect of the work it may be said, as we have more than once pointed out on former occasions in this journal, that possibly no more valuable information could be

obtained than by means of such an organisation as the London Laryngological Society. The advantage of bringing matters of doubt about different cases before such an assembly of experts, and the free discussion of views upon them, has proved an invaluable help to all engaged in this special department. The year that has passed will long be remembered as that in which the two English societies joined to form a section of the new Royal Academy of Medicine, and nothing but good can be anticipated as a result of the union. A perusal of the transactions of the Society during the past year will repay any one engaged in the study of laryngology, and the same may be said of the published reports of the British Laryngological, Rhinological and Otological Association, although its work was not limited to the purely clinical aspect of the subject.

What has just been said of work in this country is equally true of that done in other parts of the world, because the transactions of many of the continental and trans-Atlantic societies or associations are mainly made up of the reports of cases. The main benefit derived from this work lies in the discussions which follow the reading of the description of papers. In addition, however, we have had formal discussions upon general questions as apart from individual cases, all of which will be read with great interest by the profession. The differential diagnosis between tubercle, syphilis, and malignant diseases, the operative treatment of benign neoplasms of the larynx, and the difficulties attending their removal in children, the direct inspection of the upper respiratory tract, the best method of treatment in, and the differential diagnosis between, diphtheria and allied affections, are but instances of the many subjects bearing upon acute and chronic affections of the larynx which have been discussed during the past year. Although the question of innervation has not been dealt with as extensively in the past year as on previous occasions, still the subject has not been forgotten, as the paper by Dr. Broeckaert on the motor innervation of the larynx (*La Presse oto-laryngologique Belge*, No. 4, 1907) will show.

Voice production and the evils arising from improper function have also been considered, especially by the members of the profession in America. In fact, the range of subjects considered includes almost every known affection of the larynx. It need hardly be pointed out that the reports of special societies from German and Austrian centres are as usual of great importance, and the Transactions of the Société Française D'Oto-Rhino-Laryngo-

logie, the American Laryngological Association, and the Section of Laryngology of the British Medical Association for 1907 all possess a peculiar interest for laryngologists.

Notwithstanding all that has been done of late in the study of etiology, there is much yet to be accomplished. Reference has been made in this retrospect to the differential diagnosis of the three great chronic affections, and the able papers of Sir Felix Semon and Dr. Jobson Horne, who introduced the discussion at Exeter, show how much difficulty still exists in the early diagnosis. The demonstration of Koch's bacillus in the case of tubercle has done much to help us in early diagnosis, which is of such great importance in treatment, and it is also doing great work by way of prophylaxis. Even in this affection, however, negative results are sometimes obtained after the most careful search for the presence of the bacillus, and for that reason Dr. Jobson Horne's recent papers upon the source of entrance of the organisms by way of the respiratory passages is of also great importance. The negative results do not detract from the great good which has been the result of Koch's discovery. In the same way the experiments of those engaged in trying to prove the cause of syphilis to be the *Spirochæta pallida* are being watched with the greatest interest, and when we reflect upon the large number of the tertiary lesions in the larynx, and the difficulty in combating the awful effects of these, we cannot express the hope too strongly that unanimity of opinion as to the causation will soon be obtained. Unfortunately, the same hope about the origin of malignant disease cannot be indulged in, notwithstanding all the attempts that have been made during the past year to clear up the cause of the mischief. The same problems confront us in the study of acute affections of the larynx, because, while much has been done during the last decade to enable us to detect the early presence of diphtheria, still there are other acute affections of the same organ of which it may be said that some of them, if not as frequently met with, are quite as fatal in their results. Much has been recently done to trace the etiology of affections of the larynx classed as acute catarrhs, but a great deal yet remains to be done.

At the beginning of last year reference was made in the retrospect to the great improvement in methods and the popularity of the work done by Professor Killian, but the past year's records have surpassed any that have hitherto been reported. From every quarter we get evidence that his instruments, or modifications of them, are being greatly used, not only for the detection of foreign

bodies in the larynx or respiratory passages, but also for diagnosis and treatment, particularly of benign neoplasms. Professor Killian visited the United States last year and gave demonstrations to the American Laryngological and the American Laryngological, Rhinological, and Otolological Associations. It need hardly be said that he had a thoroughly well deserved and enthusiastic reception. The discussions following his demonstrations were exceedingly interesting, inasmuch as they brought to light the results of the manipulation of Killian's instruments in the hands of others. Everyone knows that a considerable amount of experience and dexterity is required before the direct inspection of the respiratory passages can be accomplished with satisfaction. It was freely stated in the discussions that tracheotomy had been required after the introduction of the instruments in a number of cases, evidently as a result of injury during the introduction of the tubes. Professor Killian, at the discussion of the American Laryngological Society, said that personally he had never had any serious consequences following the operation. He considered the introduction of the tube spatula was so easy through the rima glottis that injury could always be avoided provided we anaesthetised the larynx sufficiently and that the larynx remained widely open during the operation. No force should ever be employed.

A number of operators have devised forceps for the removal of papillomata through the tube. Professor Chevalier Jackson employs an instrument with the lamp at the distal end of the tubes, and Professor Schroetter has brought out a new instrument which is said to illumine the whole tube better than the original Killian's instrument (*JOURN. OF LARYNGOL., RHINOL., AND OTOL.*, August, 1907).

At the Manchester meeting of the British Medical Association in 1902, Professor Killian and Dr. Macintyre showed how the inspection of the passages by direct illumination and the use of the X rays could be employed in the detection of foreign bodies, and each in his own department further demonstrated how the two methods were complementary to each other. The latter in August of last year, and in this journal, published a paper giving the results of 137 foreign bodies in the upper respiratory passages and œsophagus, which had been treated during the fifteen months previously. The results obtained confirmed the views expressed by both at the time of the original demonstration.

The X rays have been largely employed for diagnostic purposes during the past year, and while the general physician might be expected to use this agent more frequently than the laryngologist,

still it is to be regretted that the method is not more frequently employed for the early detection of the cause of paralysis of abduction. For the purposes of differential diagnosis there can be no question of the great value of the X-ray photograph or even screen examination, combined with good tracings or charts now so easily made by means of one of the well-known orthodiagraphs at present in the market.

The study of opsonins is being carefully prosecuted, and much good work has been recorded during the past year. So far there is not much to record by way of advantage in the treatment in tuberculosis of the larynx, but improvement in methods and further tests may be expected to do more for laryngology in the future than has so far been accomplished.

RETROSPECT OF RHINOLOGY, 1907.

Looking back over the literature published during the year which is just drawing to a close one finds nothing indicative of any marked advance in the domain of Rhínology. At the moment it appears to be a process of marking time. So much has been done during the past few years and so many new methods of procedure have been advocated that one cannot regret the pause—a temporary one, no doubt—which will give time to enable a more matured judgment to be formed upon many of the recent methods of treatment and of technique.

The importance of detailed attention to the condition of the nasal passages in diseases of the respiratory tract is becoming more and more appreciated by physicians, whilst the general practitioner now realises the part played by morbid conditions of the nasal passages and post-nasal space in the production of diseases of the middle ear. The subject of suppurative disease of the nasal accessory sinuses has perhaps received the largest share of attention, and for two main reasons, firstly, the importance of the subject *per se*, and, secondly, its relation to intra-cranial suppuration and to morbid affections of the orbital cavity and of the eye itself.

Despite the very ingenious, and, in many cases, very successful external operations which have been suggested and performed for the relief of sinus suppuration, there appears to be an increasing tendency to favour the intra-nasal route of operation, even in cases of frontal sinus suppuration. The aid of skiagraphy has been

called into requisition, and by its means much help has been afforded, not only as to the size and position of certain of the sinuses, but also as to their actual pathological condition. That there is a great future for skiagraphy in its relation to morbid affections of the accessory sinuses cannot be doubted.

The relation of nasal accessory sinus disease to optic neuritis was discussed at the Exeter Meeting of the British Medical Association following the reading of a paper by Henry Manning Fish, of Chicago, who recorded a series of thirty-six cases of optic neuritis, in which series nasal accessory sinus disease was present twenty-six times and in which treatment of the sinuses was followed by improvement of the ocular condition in fifteen cases, including three bilateral cases in which the eyesight was restored to normal.

As would be expected, the submucous resection (Killian) operation for the relief of septal deformities has received a very large share of attention, and many papers have appeared dealing with the results of operation and the methods of technique. No modification of any real importance has, however, been suggested, and this method of procedure as originally advocated by Killian retains the popularity it so richly deserves.

Rhinologists are still much occupied with the problems as to how most effectively to deal with intra-nasal malignant disease, and it is to be hoped that in the near future more effective methods of treatment will be suggested than have hitherto been in use.

While much has been done of recent years in the matter of the surgical treatment of intra-nasal disease, much work remains to be done in the domain of its pathology, more especially in its bacteriological and cytological aspects.

RETROSPECT OF OTOLGY.

By DUNDAS GRANT, M.D., F.R.C.S., and CHICHELE NOURSE,
F.R.C.S.Ed.

THE most important event for English otology during the past year has been the disappearance of the societies devoted to this speciality, which are now merged in the new Royal Society of Medicine. This cannot fail to have a great and beneficial influence upon the progress of Otolgy as well as upon all other special branches of medicine, demonstrating, as it will, both the necessity for their separate existence, and at the same time the

inter-dependence of all the parts of medical science one upon the other.

At the Annual Meeting of the British Medical Association, held in Exeter, the discussion upon the treatment of chronic suppuration of the middle-ear, short of resort to the radical operation, was opened by a very valuable paper by Dr. Milligan, which is given at length on page 485, and by an interesting historical *résumé* by Dr. William Hill (502).

The Second International Congress on School Hygiene was held in London in August last (451), when several important questions regarding the hearing of school children were under discussion. Miss Frances Ivens, M.B., M.S., contributed a paper on "Ear Disease in East End School Children, based upon the Examination of 1000 Children" (451), in which she showed that nearly one third of them had deficient hearing. Dr. Alice Johnson (453) reported the "Results of Hearing Tests in Schools for Mentally Defective Children." Dr. Kerr Love (453) and Mr. Yearsley (454) dealt with the treatment of deaf-mutes.

AURICLE.—At the Parisian Society of Laryngology, Otology, and Rhinology, two cases of othæmatoma were described by Dr. Castex (470), and one by Dr. Pasquier (471). A case of "Noma of the Ear" was recorded by Dr. J. Hechinger (547).

EXTERNAL AUDITORY MEATUS.—A case of "Malignant Disease of the External Meatus" (22) was shown at the Otological Society by Messrs. R. Lake and W. H. Bowen. "Furunculosis" formed the subject of a paper by Seligmann (146). A case of "Multiple Neuro-Fibromata in which the Auditory Canal was Involved" was shown at the Austrian Otological Society (467) by Dr. Hammer-schlag. At the Otological Society of the United Kingdom, Dr. MacBride showed a case of "Large Exostosis of the External Auditory Meatus" (243).

MEMBRANE AND OSSICLES.—At the Otological Society Mr. Hunter Tod showed a case of "Exceptionally Good Hearing after Removal of the Stapes" (33). Dr. Zalewski, of Lembourg (146), has been making some experimental investigations concerning the power of resistance of the tympanic membrane. The light bath applied to this structure has been found beneficial by Dr. Manciola (477) in certain forms of dry otitis.

ACUTE OTITIS MEDIA.—At the Otological Society, cases of "Acute Otitis Media with Severe Symptoms, complicating Influenza," were recorded by Mr. Yearsley (25) and Dr. Tilley (23). "Otitis Media from Measles" was discussed at the Parisian Society of Laryngology,

Otology, and Rhinology (155) by MM. Le Marc'hadour, Bruder and others. A case of "Otitis Media Hæmorrhagica" was recorded by Dr. E. Amberg (144), and a case of "Bilateral Otitis after the Nasal Douche" by Dr. Percepied (156). The treatment of otitis media by Bier's method of passive hyperæmia has been studied by Kopetsky (89), Keppler (234), and Frose (659). Terson (148) had an interesting paper upon "Paralysis of the Sixth Nerve complicating Otitis."

CHRONIC NON-SUPPURATIVE DISEASES OF THE MIDDLE EAR.—Dr. N. Pierce (663) has written upon the present state of the question of oto-sclerosis, and Dr. Koerner (235) on the same disease in connection with heredity. Beck (658) uses metallic mercury for aural massage. Mr. Yearsley contributed a paper (510) on "The Value of Pneumo-massage in Middle-ear Affections." In chronic catarrhal deafness dionin is recommended by Dr. Randall (548).

CHRONIC SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.—At the Annual Meeting of the British Medical Association, Dr. Milligan (486) and Dr. W. Hill (502) opened a discussion upon the treatment of this affection. At the Otological Society a case of "Chronic Middle-ear Suppuration with Necrosis of the Labyrinth and Facial Paralysis" was communicated by Mr. Arthur Cheatele (152), and led to an interesting discussion (223). A case of "Middle-ear Suppuration, with Implication of the Chorda Tympani and Tympanic Plexus" was recorded (399) by Mr. Yearsley. Hoelscher (235) has reported "Four Fatal Cases after Purulent Otitis." Jack and Verhoeff (658) recorded a case of "Chronic Otitis Media with Fatal Hæmorrhage from the Jugular Vein." Dr. Wyatt Wingrave (403) has contributed an interesting note on the presence of spirochæte and other throat-organisms in ear-discharges.

FACIAL PARALYSIS.—At the Parisian Society of Laryngology, Otology and Rhinology, Dr. Lermoyez showed "A Patient affected with Facial Paralysis subsequent to the Removal of a Sequestrum of the Labyrinth," in whom anastomosis of the peripheral part of the facial nerve with the spinal accessory had been successfully carried out (160).

MASTOID DISEASES.—A case of "Primary Bilateral Mastoiditis" was recorded by Dr. Perry Goldsmith (660). Ryan (477) and Royce (661) contributed articles upon mastoiditis; and Langworthy (607) published a case of "Hysterical Mastoid Tenderness and Pain." At the Otological Society Mr. Lake (23) communicated a case of "Extensive Cholesteatoma of the Mastoid," and Mr. Hunter Tod a case of "Primary Tuberculosis of the Mastoid Process" (31).

MASTOID OPERATIONS. — "Local Anæsthesia for Simple and Radical Mastoid Operations" has been discussed by Newmann (234). Knapp (145) inquires what cases require the radical operation, and Oppenheimer (279) has contributed a paper upon the operation. A case of "Radical Operation followed by Complications" was recorded by Harmon-Smith (146). At the Otological Society Dr. Milligan (195) read a paper upon a case of "Attempted Suicide after a Mastoid Operation," and a case of "Suicide following Bezold's Mastoiditis," which led to an interesting discussion. Mr. Donelan (221) communicated a case of "Chronic Otitis," in which he performed the radical operation; and Mr. Chichele Nourse (191) showed a case of "Radical Operation in which the Ossicles were left Undisturbed." At the British Laryngological, Rhinological and Otological Association Mr. Charles Heath showed a series of ten cases (63) illustrating "The Cure of Chronic Suppuration of the Middle Ear without Removal of the Drum or Ossicles or Loss of Hearing," and at a later meeting (76) a further series. Bryant (88) has published a paper describing a modified operation somewhat similar to Mr. Heath's. Vaseline oil as a dressing after the radical operation has been recommended by Dr. J. N. Roy (585). Dr. W. S. Bryant (204) has also written upon "The Conservation of Hearing in Operations upon the Mastoid." Meierhof has considered the prognosis of mastoid operations in diabetic cases (607).

At the Austrian Otological Society Dr. Ruttin described a case in which a cyst had formed after the radical operation (469); Dr. Urbantschitch (467) showed the result of "A Plastic Operation for Retro-auricular Fistula." At the Parisian Society of Laryngology, Otology and Rhinology Dr. P. Laurens (155 and 160) described his method of operating for retro-auricular fistula, and showed a case. "Post-operative Perichondritis and its Connection with *Bacillus pyocyaneus*" engaged the attention of Dr. Sarai, in Japan (145), and of Dr. H. Neumann (468) at the Austrian Otological Society.

Dr. Hinsberg (147) has written on "The Significance of Conditions found during Mastoid Operations in regard to the Diagnosis of Labyrinthine Suppuration."

LABYRINTH.—The last-named author (664) has also described "The Indications for Opening a Purulently Affected Labyrinth." Dr. von Török (476) has reported a case of "Caries of the Horizontal Semicircular Canal associated with Unusual Ocular Phenomena." Manasse (147) has dealt with "Chronic Progressive Labyrinthine Deafness." Viollet (663) discussed "Syphilitic

Deafness"; Freytag (368) "Labyrinthine Diplacusis due to Syphilis." Siebenmann (654) has a paper on "Osteo-myelitis and Deafness"; Brock (658) on "The Function of the Semicircular Canals"; and Boenninghaus (607) on "The Theory of Sound-conduction." At the Austrian Otological Society Dr. Urbantschitsch recorded a case of "Ménière's Disease in a Hereditary Deaf-mute."

EXTRA-DURAL ABSCESS.—One case has been reported by Mr. C. G. Lee (261), and one which was accompanied by paralysis of the sixth nerve and optic neuritis by Mr. Stoddart Barr (90).

CEREBRAL AND CEREBELLAR ABSCESS.—"Our Faulty Methods of Brain Localisation in Intra-cranial Lesions complicating Aural Disease" is the title of a paper by Dr MacCuen Smith (664). Takabatake (608) has written on "Changes in the Eye-grounds in Otitic Diseases of the Brain"; and also (233) "On the Occurrence of Crossed Paralysis and Disturbances of Speech in Otitic Suppurations of the Brain and Meninges"; and Dr. T. K. Sidley (546) on "Otitic Brain Abscesses." "A Device found Effective in Securing Drainage of Brain Abscess" was described by Mr. T. H. Pinder (244). Cases of cerebral abscess have been reported by Professor Tanturri (660), Dr. Wiener (234), and Mr. Chichele Nourse (359); and cases of cerebellar abscess by Dr. L. B. Rawling (236), Dr. Cowen (146), Mr. A. L. Whitehead (108), Dr. Milligan (198), and Mr. Nourse (110). "A Case of Hysteria simulating Brain Abscess after Operation for Secondary Mastoiditis" has been recorded by Dr. Wiener (234). Dr. W. S. Syme (582) has contributed a paper upon a case of "Acute Suppuration of the Middle Ear complicated by Septic Meningitis and Brain Abscess."

MENINGITIS.—A case of "Death from Meningitis following Unsuccessful Attempts to Remove a Stone from the Ear" was placed on record by Dr. Schwartz (609); a case secondary to suppurative labyrinthitis was reported at the Otological Society by Dr. Milligan (29); and a case occurring after the radical operation, where the infection travelled along the facial nerve by Dr. C. N. Spratt (548). Dr. A. Knapp (657) published an interesting paper on "Otitic Meningitis."

SINUS THROMBOSIS, AFEAL PYEMIA, ETC.—Numerous cases have been published which illustrate the varieties in the course and result of otitic septicæmic conditions and the room for difference of opinion as to the treatment. We are probably approaching nearer to finality in the selection of the methods suitable for individual cases.

Mr. Charles Lee narrates two cases of interest in which the disease, or at least its re-awakening, was attributed to injury. In the first (262) the child, the subject of chronic suppurative otitis, was accidentally knocked down, and on the following day had headache and pain in the ear followed after another day by symptoms of aural septicaemia. The sinus, when exposed, was found to be covered with blood-clot, presumably hæmorrhage resulting from the accident. The sinus was filled with "unhealthy-looking clot." It was cleared and left plugged for six days. In spite of this long retention the symptoms steadily subsided, and on the removal of the plug free hæmorrhage took place. Complete recovery ensued. In the other (265) the injury was a blow over the ear. The sinus groove was full of pus, but there was no communication between the antrum and the groove, therefore the extension was probably through the small veins. The infection extended downwards round the jugular, which was collapsed, and was ligatured as low as an inch above the innominate and excised. Death ensued from meningo-encephalitis. The writer deduces from these cases the conclusion that "ligature of the internal jugular is not always obligatory or even desirable when serious disease exists in the sinus." In Dr. Donelan's (271) case death occurred in spite of ligature of the jugular vein, with collapse of lung, small marginal pulmonary infarctions and pleural effusion. Dr. Donelan asks whether the ligature of the jugular was advisable. In an acute case Dr. Perry Goldsmith (661) found a semi-fluid yellowish clot in the lateral sinus. He is stated to have tied the jugular vein above the inner end of the clavicle and below the facial. The narrator attributes the recovery of hearing to his having retained the "bridge," and indicates an indebtedness to Mr. Charles Heath for this method. This excellent method is, however, the one long practised in all acute cases such as this. Dr. Stoddart Barr (96) gives a careful study of a case of "Septic Thrombosis with Death from Pulmonary Pyæmia." The sinus was cleared and the jugular tied. At the autopsy purulent thrombi were found in the lateral sinus, occipital vein, torcular and jugular bulb. It is not definitely stated whether the bulb was exposed at the operation. In another of Dr. Donelan's cases (103), in which the exploration of the sinus at the time of the mastoid operation had to be postponed on account of the threatened collapse of the patient, death took place, and one inch of the left internal jugular, its bulb, and the lateral sinus as far as the torcular were found thrombosed, but free from pus. The

only apparent pus was a circular patch on the cerebellum on the opposite side from the mastoid disease.

Non-interference with the thrombus in cases of lateral sinus thrombosis is advocated by Voss (545). He exposes the sinus, avoiding palpation, and aspirates. If the diagnosis is confirmed he ligatures the jugular, excises the sinus, and cuts away the outer wall with scissors, leaving the clot. Jonty (366) in one case cleared the sinus and found pus on a piece of gauze which he pushed into the bulb. He left a gauze drain in the bulb. Recovery ensued, although the jugular was not dealt with. Neumann (468) gives a case of recovery, the sinus, the bulb, and the jugular having been opened. In two cases, one reported by Lewis (548) and one by Brandegee (146), death seems to have resulted suddenly from pulmonary or cardiac thrombosis. In neither had the jugular been ligatured. Kennon (146) dwells on the greater importance of the constitutional than of the local disturbances in regard to treatment.

"Primary Cavernous Thrombosis with Typical Signs" is illustrated by a case of A. Knapp's (608). The absence of ophthalmoscopic changes was remarkable, and confirmed Jansen's experience.

These reports show the importance of individualising in the selection of methods of treatment, and our readers will feel themselves specially indebted to those operators who have published these careful studies of their fatal cases.

MALIGNANT DISEASE.—An interesting case of "Epithelioma of the Tympanic Mucosa following Suppurative Otitis Media," was reported at the Otological Society (105 and 194) by Dr. Milligan. Dr. E. Botella has recorded a case of "Sarcoma of the Middle Ear; Operation; Cure" (660).

MISCELLANEOUS.—A large mass of material has been published, which, although difficult or impossible to classify, is of considerable value. "Herpetic Inflammations of the Geniculate Ganglion" have been carefully studied by Dr. J. Ramsey Hunt (657), and Dr. D. G. Vail (236) has noted a case of "Herpes Zoster Auris." "The Effects of Fracture of the Base of the Skull upon the Auditory Apparatus" formed the subject of a communication to the Otological Society by Dr. Milligan (273), and a paper by Dr. W. Lange (546 and 609). Dr. V. Cheval (547 and 662) published a remarkable case of "Wound of the Brain by a Foreign Body penetrating the Ear, followed by Meningitis in which Operation led to Recovery." Dr. Freidmann (235) reported a case of "Objective Tinnitus in a

Child," and Dr. Lermoyez (236) a case of "Entotic Tinnitus," on which he founded a paper upon "Noises in the Ear and Dechlorisation." Dr. Boenninghaus has described a case of "Bilateral Cerebral Disturbance of Hearing with Aphasia" (236), with which may be compared a case of "Periodic Central Deafness," communicated to the Otological Society (34) by Dr. Watson Williams. At the same Society Dr. Donelan analysed fourteen cases of "Marked Hypertrophy of the Pharyngeal Extremities of the Eustachian Tubes" (241). Dr. Le Beuf (35) has recorded a case of "Mutism in Typhoid," and Dr. Somers (545) has written on the "Aural and Laryngeal Complications of Typhoid Fever." Dr. Bárány (475) has studied "Reflex Ocular Movements." Dr. Schoenborn (607) reported a case of "Acute Cerebral Polyneuritis with Involvement of the Acoustic Nerve," and Dr. Withington (144) examined the hearing in a dozen convalescent cases of cerebro-spinal meningitis.

Dr. D. H. Walker has recorded "The Result of the Aural Examination of a number of School Children" (144). Dr. Suckstorff (145) wrote on "The Value of the Leucocyte Count in Inflammatory Diseases of the Ear, and in Otitic Complications." Dr. Bryant (279) treated of "The Preservation of Hearing." Dr. Dionisio (477) has been trying "Photo- and Radio-therapeutics in Chronic Suppuration of the Middle Ear."

REVIEWS.—The following otological works have been reviewed in the pages of the *JOURN. OF LARYNGOL., RHINOL., AND OTOL.* during the past year: "Operative Otology, Surgical Pathology, and Treatment of Diseases of the Ear," by Dr. C. J. Blake and Dr. H. O. Reik (90); "A History of Otology," by Professor Politzer (477); "The Labyrinth of Animals, including Mammals, Birds, Reptiles, and Amphibians," by Dr. Albert Gray (368); "L'Otite Moyenne Purulente Aiguë et son Traitement," by Dr. G. Laurens (369); "Some Points in the Anatomy of the Temporal Bone from Birth to Adult Life," by Mr. Arthur Cheatle (419); "Chronic Progressive Deafness; its Diagnosis and Treatment," by Dr. A. Lucae (665); and "Diseases of the Ear," by Mr. Hunter Tod (666).

This is, in the main, the sum of the work in otology during the past year as recorded in the *Journal*; its inequality of distribution is no doubt partly due to varying interest in different disorders, but partly also to accidental circumstances, such as the material presented for study. As a whole it represents a continuance of satisfactory progress, and the gaps will doubtless suggest to our readers new and profitable fields of labour.

A CASE OF EXTRA-DURAL ABSCESS INDUCED BY MIDDLE-EAR DISEASE.

BY DR. RAFAEL SPIRA,

Director of the Department for Diseases of the Ear and Nose,
Jewish Hospital, Krakau.

TRANSLATED BY DR. W. LAUZUN-BROWN.

IN the larger sense of the term every accumulation of pus between the cranial bones and the periosteum (endosteum) may be called an extra-dural abscess. In a stricter sense the term is applied to accumulations of pus between the cranial bones and the endosteum at a particular point, whilst a diffused suppuration surrounding the external surface of the dura is called extra-dural suppuration (Grunert). Both of these forms are due to inflammation of the external surface of the dura mater, set up by purulent inflammation extending from the tympanic cavity or mastoid process or from the labyrinth. It is common in chronic and acute purulent inflammation of the middle ear, and sometimes is due to simple catarrhal inflammation without the presence of pus. The pus travels principally through certain small fistulæ leading from the drum cavity or the mastoid antrum to the middle fossa or to the posterior fossa of the skull. The disease may extend from the middle ear into the cranial cavity by direct conduction. Sometimes pus travels from the labyrinth through the internal meatus or the aqueductus vestibuli or cochleæ to the posterior surface of the petrous bone. Inflammation may pass through the anterior wall or the posterior wall of the drum cavity to the carotid or the sinus sigmoideus respectively, and indirectly through these to the dura mater. Grunert and Heiman describe an extra-dural abscess in the posterior fossa caused by a subperiosteal abscess behind the ear.

Extra-dural abscess is the most frequent of all complications arising from middle-ear disease. It arises along with other disorders of the brain, but sometimes arises separately. It is more common on the right side, and in males than in females; more frequently found in the posterior than in the middle fossa, and may extend from the orbit in front to the torcular Herophili behind. It may occupy the whole space of half the skull and cause a congestive abscess on the side of the neck. The dura mater may be altered, the alterations depending upon the extent of the trouble, and varying from slight inflammatory redness to a gangrenous destruction of tissue. In recent cases the pus is thick

but not foetid. In chronic cases the matter is liquid, dark, and foetid. The mastoid process is generally affected. In acute cases diplococci are generally present; in chronic cases staphylococci and streptococci.

The symptoms produced are those observed in other diseases of the brain. There is not one cerebral symptom that may not be observed in the course of this disease. The general symptoms are: fever, weakness, emaciation, loss of strength, loss of appetite, furred tongue, and foetor from the breath. The cerebral symptoms are those of pressure, namely, headache, staggering gait, vertigo, pain on percussion or pressure of the skull, slowness of the pulse, sickness and vomiting, depression, sleeplessness, hiccough, and changes in the fundus.

Among the local symptoms we may have alterations in speech of a sensory character, particularly when the abscess is on the left side, convulsions and paralysis of the limbs and of the orbital muscles, giving rise to strabismus, nystagmus, etc. Oculo-motor paralysis, facial disturbances, derangements of the pupil, and stiffness of the muscles of the neck, may be present. All the symptoms of meningitis and of cerebral abscess may also appear, either separately or in combination. There may be alterations in the organs of hearing, earache, swelling and pain over the mastoid region when it is pressed or percussed, or there may be a fistulous opening in the neighbourhood of the external ear. This disease often accompanies other intra-cranial complications, the symptoms of which may efface those of the extra-dural abscess. There is no pathognomonic symptom by which extra-dural abscess can be recognised. It is usually found unexpectedly or incidentally on the operation table. Prior to that it is a matter of probabilities, or its presence is arrived at by a process of exclusion, as happened in the case I am about to report. We can usually say that swelling sub-periosteal abscess or fistula of the squamous bone, or of the mastoid process, or of the masto-occipital sutures, warrant this suspicion of extra-dural abscess. Further evidence might be afforded by persistent headache and pain over the temporal bone, especially if it is subsequent to disease of the ear, and with no other obvious reason present. The suspicion would be also strengthened if symptoms of increasing intra-cranial pressure were observed, such as changes in the fundus, disorders of the pupil, slowness of the pulse, and stiffness of the muscles of the neck.

These symptoms can only have a diagnostic value when other diseases can be excluded. We should suspect extra-dural abscess

in conditions of suppuration of the middle ear when there is discharge of large quantities of pus, followed by subsidence of cerebral symptoms. Sudden increase of discharges from the ear, impairment of mobility of the head, nystagmus of both eyes, particularly marked on the affected side, point to extra-dural abscess. According to Grunert's view, disorders of the stomach should excite suspicion if they accompany chronic ear disease. Headache increasing during the night on the affected side, combined with vertigo, slow pulse, sickness and vomiting, ought to direct attention to this condition. The diagnosis becomes certain if we can reach the suspected dura mater by means of a probe passed through a fistulous opening.

NOTES OF CASE.

K. B——, police official, aged forty, came under treatment on December 2, 1902. On September, 1900, the patient caught cold, and earache, noise in the ears, and impairment of hearing occurred in both ears, as a result of the catarrh. The hearing got better, and the pain ceased, but the tinnitus continued. Headache commenced, and a swelling appeared over the skin behind the left ear. During the two years the patient had attended physicians and specialists, who employed tympanic inflations, massage of the nose, ear drops, sulphur baths, and various drugs to relieve the headache, but the improvement was transitory. The headache increased, and became so violent that the patient could not sleep or perform his official duties. There was never any discharge from the ear. The right arm and hand became weaker, so that the patient could not write. Only once the patient was confined to bed for four days, owing to a very bad headache in March or April, 1901.

Present condition.—I found the patient pale and thin. The tympanic membrane showed chronic dry catarrh of the middle ear. Behind the left ear there was an insignificant but distinct dough-like swelling of the skin, extending from the insertion of the concha over the left mastoid, temporal, occipital and parietal bones, reaching slightly over the middle line of the cranium. At these points there was pain on touching or even stroking the hair with the hand. There was nothing pathological in the eyes or in the facial nerve. The temperature was normal. An examination of the hearing power showed on the right that the watch could be heard $\frac{1}{8}$ m., and on the left $>$. Whispering on the right 4 metres,

on left on contact. Weber on right ; Rinne, both sides negative. Bone conduction reduced. The fundus was not examined. Internal organs without change ; sensorium intact. I diagnosed an extradural suppuration induced by inflammation of the ear on the left side, and sent the patient to the hospital to Professor Trzebicky for operation. The following history of the disease I obtained from Professor Trzebicky, to whom I return thanks.

On December 4, 1902, the temperature taken prior to operation was 38° C. Pulse 85, regular. The patient was put under chloroform, and a free incision was made through the tissues to the bone, parallel to the insertion of the concha. The periosteum was scraped back, and the mastoid process was opened with a chisel. The superficial layers of the bone were sclerosed, but the central portion was decayed, and like the mastoid antrum was filled with granulations. The dura was found uncovered in the middle fossa, and a quantity of pus escaped. The mastoid bone was affected also. On removing the posterior and inferior part of the mastoid process a large quantity of pus welled out again. The transverse sinus was filled with a fresh coagulum. This was opened and cleared away. Pus continued to flow from the posterior part of the cranium, and the bone was chiselled further in that direction. The dura was found thickened, and studded with vascular granulations. At a point corresponding to the limit between the temporal and frontal lobe, the dura was perforated by a fistula, leading into the brain as far as the cortical stratum. This was found softened superficially. Portions of the cerebral substance issued through this opening. After cleaning the fistula from pus, the cavity was plugged with iodoform gauze, and the wound bound up.

December 4.—Temperature 39° C.; pulse accelerated, but vigorous and regular ; paralysis of the facial nerve appeared ; the patient was excited.

December 5.—Temperature 39° C.; patient conscious but excited ; headache had ceased.

December 6.—Temperature sub-febrile ; patient in good state.

December 8.—The superficial bandage was soaked with pus and had to be changed. The gauze drainage was drawn slightly out. Patient still excited, but cannot remember proper names (aphasia amnestica). He only remembers his own name and the name of his superior officer.

December 11.—The dressing changed ; drains drawn forward. Secretion of the wound had subsided.

December 24.—The verbal memory slowly returns, and the

patient learns proper names and retains memory, and can repeat them after reflection. The discharge is very small; temperature normal; excitement subsides.

January 20, 1903.—Drain drawn out, wound nearly healed; the patient practises speaking and his stock of proper names is increasing.

January 24.—The patient is dismissed from the hospital. The remaining wound is about the size of a pea. Probe penetrates to the depth of 1 cm.

The clinical diagnosis was thus confirmed by the operation. It proved this to be a case of pachymeningitis externa suppurativa abscessus extra-duralis post otitidem, encephalitis superficialis circumscripta.

Remarks.—I saw the patient only once prior to operation, but from the history and the result of the objective operation it was clear that some intra-cranial condition was before me, likely to arise from chronic suppuration of the middle ear. The indications were too meagre to enable a direct diagnosis to be arrived at. On going over the known cranial conditions arising from ear disease there was no difficulty in excluding all other conditions with certainty. Meningitis is one of the most frequent of such conditions, arising from middle-ear disease, but the history and condition of the patient was sufficient to exclude that. The patient had had no fever, no sickness or vomiting, no stiffness of the neck, no nerve disturbances, sensory or motor; the muscles of the eye were normal, and his consciousness had always been normal.

Thrombo-phlebitis of the transverse sinus of long duration would cause metastases in other organs, especially in the lungs and joints, and would provoke fever and pyæmia, with much sweating, which could not have escaped the patient's observation. This was not present, nor any other objective or subjective changes along the jugular vein.

It should not be forgotten that cerebral abscess as a complication is never to be excluded *à priori*. It may exist in a state of latency. On the other hand, the absence of signs of focal disease in the brain and of other indications which accompany cerebral abscess made it difficult to suppose that one existed in this case. The large swelling underneath the skin of the whole left half of the cranium, the amount of pain in the bone on touching that area, the history of previous disease of the ear and violent headache, the intensity of which was out of proportion to the objective alterations in the hearing organ, justified the diagnosis of extra-

dural abscess, notwithstanding the insignificant changes present in the ear.

As to its localisation, the swelling and pain behind the mastoid process indicated an abscess in the posterior fossa, the swelling on the squamous bone indicating an abscess in the middle fossa. But these symptoms did not help much in localising, because pain and swelling behind the mastoid region may occur with an abscess in the middle fossa, and *vice-versâ*. In our case the symptoms indicated a diffused abscess in the middle and posterior fossa, and that was ascertained by operation. The loss of muscular strength of the right arm would direct attention to the left frontal lobe, where the motor centres reside. But this symptom was not mentioned by the patient until after the operation, and a minute objective examination was not made.

We understand clearly the course of the disease. The patient had suffered for two years from otitis media, either phlegmonous or catarrhal. This set up central inflammation of the mastoid bones, and while the acute symptoms of the ear disease disappeared the inflammatory processes persisted, affecting the internal plate of the temporal bone, and after its perforation the dura mater.

The suppurative process, not having been recognised nor treated, gradually extended along the external surface of the dura, and caused the perforation of the meninges, most probably inflammation of the veins (*venæ osseæ*) passing between the cavity of the cranium and the external skin of the head, giving rise to the severe headache and to the extensive tumefaction. It is surprising that the symptoms of brain pressure or other cerebral troubles were not more prominent. It is probable that the disease had lasted during the whole time of the patient's illness, and only became aggravated on the appearance of the swelling. This receives corroboration from the amount of discharge met with at the operation. Occasionally this condition terminates spontaneously, the pus finding a way outside through the squamous or mastoid bone, as happened in a case operated upon by Professor Obalinski, and published by me in the *Arch. f. Ohrenheilk.*, vol. xli, or by way of the mastoid process, or by perforating the membranes of the ear. It also often perforates the dura, and gives rise to cerebral abscess, inflammation of the lateral sinus, or of the soft meninges. In this case there can be no doubt that further neglect or delay would have infallibly led to deeper complication, to extensive cerebral softening, to cerebral abscess, greater inflammation of the meninges, and inevitable death.

The above-mentioned difficulties of diagnosis and the frequency of the disease cause some authors (Grunert, Koerner, Heiman, Tausen, and others) to have recourse to the opening of the cranium immediately in cases in which during the course of a suppurative inflammation of the ear there occurs fever, pain in the occipital or temporal region, especially if at the same time other causes for these symptoms can be excluded, as in any strange retention of pus, and if the usual antiphlogistic and local remedies have proved inefficacious. Thus where the diagnosis of the nature and the seat of the complication cannot be made with certainty, it should be remembered that extra-dural abscess is the most frequent intra-cranial complication of ear diseases. Tausen found it four times as often as thrombosis and phlebitis of sinus, twenty-eight times oftener than cerebral abscess, and five times oftener in the posterior than in the middle fossa of the cranium.

It should be noted that in this case the trouble arose without any suppuration of the middle ear. Such cases are known, but are not frequent, and this case represents, I think, an instructive enrichment of our statistics in this respect. It is often observed that the original ear disease heals quickly, and a shorter or longer time after other symptoms appear which indicate affection of the mastoid process or an intra-cranial complication. The diplococci appear to encapsulate themselves in the mastoid antrum, and remain there latent, until favouring conditions arise, when they bring about an inflammation of the temporal bones or some other complication. The anomaly of speech present in this case finds its explanation in the alterations discovered in the cortex of the brain at the operation, and may be considered as a (*κατ' ἐξοχὴν*) symptom of a focal disease in the cerebrum, and may be defined as aphasia motorica transcorticalis partialis (Wernicke). Its causes are to be sought for in the lesions of the associating paths between the motor centre of speech in the third frontal gyrus and the centre of ideation, namely the other motor and sensory centres of the cerebral cortex (Von Spira, *Przegląd Lekarski*, 1903, Nos. 1, 2, 3, 4). Very curious and strange it seems that this manifestation occurred some time after the operation, and after the removal of the pus and the clearing of the cranial cavity had diminished intra-cranial pressure, and that through the whole of the two years during which the disease lasted, no such loss of memory was observed, either by the patient or those around him.

This I have discussed elsewhere in my treatise: "Diseases of the Ear and Anomalies of the Speech" (*Przegląd Lekarski*, 1903).

I only mention it here as curious and rare. We need not wonder that the clot found in the sinus during the operation had not shown itself by any symptom. The coagulum was fresh and benign, was not infected and not purulent, and therefore did not occasion metastases. Delay in the operation would certainly have brought it about.

THE TREATMENT OF GOITRE BY REMOVAL.

AS PRACTISED BY MR. JAMES BERRY, F.R.C.S.ENG.,
Surgeon to Royal Free Hospital.

MR. BERRY recently brought before the Surgical Section of the Royal Society of Medicine the report of 274 additional cases of goitre treated by removal during the last six and a half years, this being a continuation of the series previously published, the total now amounting to 400. The following extracts from his remarks contain in terse form the expression of some very important views entertained by him.

The operations were performed upon 268 patients whose ages ranged from 12 to 73 years. More than three fourths of the patients came from country districts.

The reasons for operation were: Dyspnœa in 177 cases (64·5 per cent.); deformity, 33 cases (12 per cent.); discomfort and dyspnœa, mostly with minor degrees of dyspnœa, 47 cases (17·1 per cent.); malignancy, papilliferous tumours, etc., 10 cases (3·6 per cent.), suspected malignancy, dysphagia, increase in size, 7 cases (2·5 per cent.). No degree of dyspnœa with which the author is acquainted is too severe to permit of an operation for the removal of goitre. It is in cases of most severe dyspnœa that operation can do most good, and should be most strongly urged. The author has never refused to operate on any non-malignant cases on the ground of the dyspnœa being too severe. The cases recorded include all degrees of severity of dyspnœa, up to and including one case in which the patient was unconscious from asphyxia before operation was begun. Tracheotomy, as a means of treating non-malignant goitre, however severe the dyspnœa, is to be condemned. No case has thus been treated in the last six and a half years. Dyspnœa from goitre is always due to direct pressure on the trachea, and has little or nothing to do with irritation of recurrent laryngeal nerves. The trachea is compressed and displaced

by goitre according to definite and fixed rules, a knowledge of which is important for operative purposes.

Operation for deformity alone should (with rare exceptions) be undertaken only in cases of encapsuled tumours.

The 203 cases of encapsuled tumour included 106 solid adenomata, 94 cystic adenomata, 2 pure cysts and 1 hydatid cyst: the 71 cases of non-encapsuled tumour included 26 parenchymatous, 28 adeno-parenchymatous, 17 papilliferous and malignant. The transition of solid adenomata into cystic adenomata on the one hand, and into fibrous tumours on the other hand, is mentioned. Haemorrhage into the softer forms of adenoma is a common occurrence, and is often the cause of severe and sudden dyspnœa, and occasionally of death by suffocation.

The situation of the goitre as regards the sternum is a matter of much importance, substernal and intra-thoracic goitre usually causing much dyspnœa: in such cases operation is generally urgently demanded, and as such tumours are nearly always encapsuled, they are, as a rule, best removed by enucleation. The danger of bilateral goitres with high degrees of dyspnœa in young subjects with soft and easily compressible tracheas is pointed out. Seven cases of intra-thoracic non-malignant goitre are found in the series, one of them, a remarkable case of bilateral intra-thoracic goitre.

The operations performed are divided broadly into two classes, those of intra-glandular enucleation and its modifications, and those of extra-capsular extirpation and its modifications. Thirty-two of the 274 operations were performed upon both sides of the neck at the same time.

Encapsuled tumours expand and thin the overlying gland, but never break through it. They are generally best treated by intra-glandular enucleation. The modification known as resection-enucleation is, however, the operation of choice for most encapsuled tumours, and the author now performs this operation in nearly all cases of encapsuled tumours, except when the latter are quite small.

General and uniform enlargements of the gland are, as a rule, best treated by internal remedies. Severe dyspnœa not yielding to medicinal treatment demands operation. When operation is required it should be extirpation, or its modification, resection-extirpation. Pure enucleation and pure extirpation are now rarely performed in the author's practice. Extirpation is, however, the only operation recommended for the removal of malignant disease. In per-

forming extirpation, the main superior thyroid artery and vein should be tied early: special care should be taken to tie inferior thyroid veins securely. Ligation of the main inferior thyroid artery has been practically abandoned in favour of tying its branches separately in front of the nerve.

Discussing points common to all forms of thyroid operations, it is considered that if due care be exercised in the method of administration a general anæsthetic may generally be given with safety. General anæsthesia should never be deep if stridor is present. In five cases only in this series was no general anæsthetic employed. The position of the patient should be that of semi-recumbency. A curved, transverse incision, very low down in the neck, is the one now almost invariably employed. Infra-hyoid muscles are generally divided high up in the neck, and subsequently sutured. The author attaches much importance to keeping the exposed wound covered up with wet gauze as far as possible throughout the operation. Drainage is employed more frequently than formerly, except in cases of small tumours. The drainage tube is almost invariably removed after eighteen to twenty-four hours. Very fine silk, boiled immediately before use, is used for all ligatures and sutures except those of the skin.

After operation patients sit up in bed from the beginning, and get up on the second or third day. Stitches are removed on the fourth day, and most patients are quite well by the middle of the second week, or sooner. Complications of any kind are very rare. Occasionally blood collects in the wound, and may have to be let out.

Neither cachexia strumipriva nor tetany has occurred in any case. In no case is it ever necessary, in the author's opinion, to remove the whole gland, although very extensive operations are often required. All patients are asked to report themselves periodically after operation.

Three cases of innocent goitre ended fatally, two of them from heart failure shortly after operation, on patients extremely ill before operation. The third death was on the eleventh day from pleurisy: this case was complicated by accidental laryngotomy during removal of a very large goitre with displaced and soft trachea.

Malignant disease is but rarely seen at a period when it is suitable for operation, and the results of operation are most unsatisfactory. Only seven cases out of a large number seen were submitted to operation. Three were advanced cases in which operation was undertaken only in the hope of temporarily relieving

urgent and severe symptoms; one of these was intra-thoracic; all three died. In the other four the tumour was movable, and there seemed a reasonable prospect of effecting a complete removal of the disease; all the wounds healed quickly, but in three of them recurrence took place sooner or later, and one only (a comparatively recent case) is still in good health without recurrence.

It will be seen that no *genuine* cases of exophthalmic goitre have been treated by removal. The list, however, includes several cases of goitre with palpitation, tremulousness, and other symptoms often found with simple goitre. These cases are by many classed as incomplete cases of Graves' disease (the so-called "*formes frustes*"). The author believes that the advisability of removal of the goitre of true Graves' disease is still an open question. The risk of operation in such cases is undeniably very grave; the ultimate benefits are by no means certain or lasting. Those who appear to have had fairly satisfactory results in the removal of goitre in cases of genuine Graves' disease are apparently extremely careful in the selection of the cases they submit to operation. On the other hand, operations in cases of so-called "*formes frustes*" yield excellent results, as might be expected.

Detailed statistics of a long series of operations upon genuine exophthalmic goitres, giving exact condition of each patient before and some time after operation, are much wanted.

Mr. Berry arrives at the following conclusions: Operations for innocent goitre as a rule yield admirable results and afford complete relief from all symptoms. The operation is, however, a delicate one, and should not be undertaken lightly or without due attention to important details. Special attention should be paid to anaesthesia and asepsis, to the careful arrest of all hæmorrhage (especially venous), to the recurrent nerve, and to the drainage of the wound for a short time.

In most operations it is best not to remove that portion of the goitre that lies next to the œsophagus, recurrent nerve, and side of the trachea. The patient should be encouraged to be up and about within a very few days of the operation.

The appended table presents in *résumé* many points of interest brought out in Mr. Berry's communication.

SEX . { Males 36 operations on 32 patients } 274 operations on 268 patients.
 { Females 238 " " 236 " }

I.—AGE.

	Under 15.	15—19.	20—29.	30—39.	40—49.	50—59.	60—69.	Over 70.	Total.
Operations . . .	6	19	61	92	59	29	7	1	274
Patients . . .	6	19	60	91	59	25	7	1	268

II.—CHIEF REASON FOR OPERATION.

	Cases.
Dyspnea	in 177
Deformity	33
Discomfort or deformity, mostly with minor degrees of dyspnoea	47
Malignancy, papilliferous tumour, etc.	10
Suspected malignancy	3
Dysphagia	1
Increasing size	3
	<hr/> 274

III.—NATURE OF THE GOITRE.

<i>Encapsuled—</i>		Cases.	Cases.
Solid adenoma		in 106	
Cystic adenoma		94	
Pure cyst		2	
Hydatid cyst		1	
		<hr/> 203	
<i>Non-encapsuled—</i>			
Parenchymatous		26	
Adeno-parenchymatous		28	
Papilliferous		10	
Malignant		7	
		<hr/> 71	
			274

IV.—NATURE OF THE OPERATION.

<i>Enucleation.</i>	Innocent goitre.	Malignant goitre.
Enucleation (simple)	107	1
Resection-enucleation	92	0
Evidement	3	0
Enucleation and evidement	2	0
Resection-enucleation and enucleation	4	0
	<hr/> 208 (with 1 death)	<hr/> 1 (with 1 death)
<i>Extirpation.</i>		
Extirpation (simple)	19	6
Resection-extirpation	33	0
Resection	1	0
Resection and extirpation	1	0
Extirpation and enucleation	2	0
Resection-extirpation and enucleation	1	0
Resection-extirpation and resection-enucleation	2	0
	<hr/> 59 (with 2 deaths)	<hr/> 6 (with 2 deaths)

TOTAL . { Innocent goitres 267 (with 3 deaths) } 274.
 { Malignant „ 7 („ 3 „) }

V.—HEALING OF WOUND.

	In 267 non-malignant cases.	In 7 malignant cases.
(1) Immediate healing by primary union	232	3
(2) Primary union, except in track of drain; healing in from 10 days to 3 weeks	11	1
(3) Secondary union after drainage and gauze packing; healing in from 12 days to five weeks	7	-
[4 of these intra-thoracic (Nos. 182, 243, 248, 254), 1 operation during insensibility from asphyxia (No. 136)].		
(4) Apparent primary union; late mild suppuration after leaving hospital, home, etc.; eventual complete healing	8	-
(5) Mild suppuration, chiefly superficial, stitch abscesses, etc., in hospital or home; healing in from a few days to 2 months	5	-
(6) Rather profuse suppuration and sinus for several weeks, then complete healing	1	-
(7) Died	3	3
	<hr/> 267	<hr/> 7

A STUDY OF THIRTY-SIX SUCCESSIVE CASES OF OPTIC NEURITIS. NASAL ACCESSORY SINUS DISEASE PRESENT TWENTY-SIX TIMES.

TREATMENT OF THE SINUSES FOLLOWED BY IMPROVEMENT OF THE OCULAR CONDITION IN FIFTEEN CASES, INCLUDING THEREIN THREE BILATERAL CASES RESTORED TO NORMAL.

BY HENRY MANNING FISH, M.D.,
Chicago.

(Continued from page 643, Vol. XXII.)

CASE 33.—*Bilateral Optic Neuritis appearing at the Menopause; Amaurosis.*

In July (?), 1906, Mrs. M——, aged about fifty, was seen in consultation with Dr. Grant Huston, of Joliet. There had been trouble at the menopause and the patient had undergone an abdominal operation, the nature of which was not determined. Some form of paralysis ensued, accompanied by atrophy of each optic nerve. Exitus three months later.

CASE 34.—*Bilateral Optic Atrophy; Amaurosis; due to Basilar Tumour.*

Cases showing Improvement of Ocular Condition following Treatment of the Nasal Sinuses.

Case.	Eye.	Lesion.	Recent or old.	Sinus treatment.	Vision.		Pain in head.	Dizziness.	Involve-ocular muscles.	Etiology of sinusitis.	Diagnosis elsewhere.	Remarks.
					Before.	After.						
1	O.D. O.S.	Ret.-oc. Ret.-oc.	Recent Recent	Non-opt. Non-opt.	Fing. Fing.	1. 1.	Severe Relief	Present Relief	Absent —	Influenza —	— —	No reply received to recent inquiry as to the present condition. Last report gave the V. normal.
2	O.D. O.S.	Ret.-oc.	Recent	Opt.	1	1	Absent	Present	Present	Cold	—	No recent report; last account good.
3	O.D. O.S.	Papillitis Papillitis	— —	Non-opt. Opt.	1. 1.	1. 1.	Severe Relief	Present Relief	Had been present	Cold —	— —	Consulted different ophthalmologists during 3 years, who gave a grave prognosis. Complete relief; patient has been at work during last 6 months.
4	O.D. O.S.	Neur.-ret. Neur.-ret.	Recent Recent	Opt. Non-opt.	.05 .05	1. 5	Present Relief	— —	Absent —	— —	Albunimuric	Patient now practising dentistry, reported June 13, no trouble with his eyes since the operation in January.
7	O.D. O.S.	Secondary	— —	Non-opt. Non-opt.	.07 0	5 0	Present Relief	Present Relief	Bilat. ptosis. spont. cure	— —	— —	Luetic intra-cranial lesion V. reduced for 4 months. Improvement in V. due in part to diminution of vitreous opacities. One year later, "can read as good as ever."
10	O.D. O.S.	Ret.-oc. Ret.-oc.	Recent Part opt. at.	Opt. None	0 0	Fing. 0	Present —	Present —	Present —	Tumour posterior cells Influenza	Cerebral lesion	On determining a probable sarcoma of the ethmoid a further treatment was not advised.
13	O.D. O.S.	Papillitis Primary	Recent Opt. at.	Non-opt. None	Form. 0	1. 0	Present —	Present —	Absent —	— —	Tumour cerebri	Operation of sinuses advised but refused; recurrence; final V. = movements.
14	O.D. O.S.	Primary glaucoma each eye	— Opt. at.	Opt. —	5 0	1. —	Present Relief	Present —	Absent —	Influenza —	Glaucoma	V. F. enlarged. Ocular condition satisfactory for weeks. Radical operation for chronic poly-sinusitis not advised on account of leucophila. When last seen patient again instilling eserine.

Case.	Eye.	Lesion.	Recent or old.	Sims treatment.	Vision. Before. After.	Pain in head.	Buzziness.	Involv. ocular muscles.	Etiology of sinusitis.	Diagnosis elsewhere.	Remarks.
15	O.D. O.S.	Secondary glaucoma each eye	—	Non-opt. Non-opt.	Enucleation .07 .5	Severe Improved	— —	Absent —	— —	Secondary glaucoma	O.S. iridectomy 4 years before. Improvement in V., reduced for 4 years, due in part to diminution of vitreous opacities. Partial atrophy of disc. Chronic left empyema, subject to exacerbations with consequent visual disturbances. V. in June reduced to .15 owing to relative scotoma of upper half of field; relief following curetage of posterior ethmoidal cells.
18	O.D. O.S.	Papillitis Papillitis	Years before	None Opt.	1. .15	Present Relief	Present Relief	Present —	Influenza —	— —	Absolutely normal nasal finding. Fluidal changes resembled rhinitis aluminurica. Patient dismissed the 6th day with normal V.
19	O.D. O.S.	Normal hem. neu.-ret.	Recent	— Non-opt.	— Movements	Absent —	Present —	Absent Absent	Influenza Influenza	— —	Useful V. lost. Hemiplegia, vomiting, and T. + 3 relieved by drainage of frontal empyema.
20	O.D. O.S.	Papillitis Normal	Recent	Non-opt. —	J. No. 4 —	Present Severe	— —	— —	— —	Glaucoma	O.S. flashes of light and asthenopia relieved. Severe pain became strictly unilateral. Operation, right side, postponed and not performed.
21	O.D. O.S.	Primary glaucoma Neu.-ret.	Opt. at Old	Non-opt. None Opt.	Greatly reduced Fing. 1.	Present Relief	Present —	Absent —	— —	— —	Total ptosis and muscular involvement greatly improved. Typical case of chronic empyema aside from the absence of nasal secretion. Consulted numerous specialists; nostrils never examined. Had been the subject of many clinical lectures.
9	O.D. O.S.	Ret.-oc. Ret.-oc.	Old Old	Opt. —	0 0	Present Relief	Present —	Present Improved	— —	Tumour cerebri tabes alcohol- neotini	—

Cases in which Nasal Sinus Disease was Present.

Case.	Eye.	Lesion.	Recent or old.	Sinus treatment.	Vision.		Pain in head.	Dizziness.	Involvement of ocular muscles.	Etiology of sinusitis.	Diagnosis elsewhere.	Remarks.
					Before.	After.						
6	O.D. O.S.	Hæmor. neu.-ret.	Opt. at.	None	Fing.	Cent. V	—	—	—	Influenza	—	Periphoral V. better. Operation advised; refused.
5	O.D. O.S.	Hæmor. neu.-ret.	Opt. at.	Non-opt.	Move- ments	Cent. V	Severe	Present	Absent	Influenza	—	Operation advised; refused.
12	O.D. O.S.	Papillitis	Opt. at.	None	L.P.	—	Severe	Improved	Present	—	Tumour cerebri	Syphilis denied. Consulted many specialists. Nostrils never examined.
8	O.D. O.S.	Ret. oc. Hæmor.	Recent	Non-opt.	.75	—	Severe	Present	—	Cold	—	Marked relief from pain and vertigo. Operation advised; refused.
23	O.D. O.S.	Normal	—	—	—	—	Improved	Relief	—	Cold	—	Left nostril nearly occluded by congestion and purulent secretion.
24	O.S.	Ret.-oc.	Recent	None	Reduced	Reduced	Absent	Present	—	—	Alumina-muria	Operation advised; refused.
16	O.D. O.S.	Ret.-oc.	Old	None	.4	—	Present	Present	Absent	—	—	—
25	O.D. O.S.	Normal	Old	—	.4	—	—	—	—	—	Erysipelas	V.O.D., which had been reduced, probably restored through spontaneous drainage of cells on that side.
17	O.D. O.S.	Ret.-oc.	Opt. at.	None	1	—	Had been present	—	—	—	—	After amputation of part of mid-concha polypi were removed. Increased vertigo attributed "to operation." Second operation refused.
11	O.D. O.S.	Hæmor. neu.-ret.	Part opt. at.	Opt.	.07 .4	.5	Present	Present	Present	Syphilis	Syphilis	—
26	O.D. O.S.	— Normal	Opt. at.	Opt. Non-opt.	L.p. L.p.	—	Severe	Present	Present	Tumour post. cells	Intra-cranial lesion	—
			Part opt. at.	—	—	—	Relief	Relief	Absent	Influenza	—	Operation advised but postponed. Patient writes July 8, "pain relieved."

Cases with unknown Etiology.

Case.	Eye.	Lesion.	Recent or old.	Nasal exam.	Vision.		Pain in head.	Dizziness.	Involv. ocular muscles.	Etiology of sinusitis.	Diagnosis elsewhere.	Remarks.
					Before.	After.						
27	O.D. O.S.	Primary Primary	Opt. at. Opt. at.	Negative Negative	L.p. L.p.	— —	Had been severe	Present —	Present Early	— —	Tumour cerebri	Spontaneous cure of muscular involvement. Attacks of severe pain months apart, with intervals of complete relief. Superior cervical ganglia removed in 1903. Patient seen but once.
28	O.D. O.S.	Primary Primary	Opt. at. Opt. at.	Negative Negative	O O	— —	Present —	Present —	Absent —	— —	— —	Recent cold followed by pain, lid oedema, and op. neur. Sinuses inaccessible; operation refused.
29	O.D. O.S.	Primary Primary	Opt. at. Opt. at.	Negative Negative	O O	— —	Present —	— —	— —	— —	— —	Recent cold followed by pain, lid oedema, and op. neur. Sinuses inaccessible; operation refused.
30	O.D. O.S.	Primary Normal	Part opt. at.	Con- gestion	0.7 1.	— —	Present —	— —	Absent —	— —	Later diagnosed as "glaucoma."	Sphenoidal cells had been opened; craniotomy negative. Writer advised treatment of eth. cells; refused. Final V.=0 each eye. Craniectomy advised unless condition improved within few days. Complete recovery under K.I.
31	O.D. O.S.	Hæmor. neu.-ret.	Recent Recent	? —	O O	— —	Present —	Present —	— —	Followed influenza	Syphilis Cerebral lesion	—
32	O.D. O.S.	Hæmor. neu.-ret.	Recent Recent	Con- gestion (year later)	Reduced in one eye	Normal Normal	Severe —	Present —	Present —	— —	Abscess or tumour cerebri	—

Cases with known Etiology.

- CASE 33.—Bilateral anaurosis appearing at the menopause.
CASE 34.—Bilateral anaurosis following removal of basilar tumour.
CASE 35.—Bilateral anaurosis due to hydrocephalus internus.
CASE 36.—Bilateral neuroretinitis albuminurica complicating pregnancy.

CASES OF OPTIC NEURITIS DUE TO SINUSITIS.

I. Cases showing Improvement after Treatment of the Sinuses.

(A) Bilateral Cases.

Reporter.	Sinus.	Vision.		Remarks.
		Before.	After.	
Wölge	O. D. Fr.	"Blind"	"Cure"	—
	O. S. Fr.	"Blind"	0	—
Ziem	O. D. Max.	Fing.	.25	—
	O. S. Max.	Fing.	.2	—
Alexander	O. D. Spl.	1'	—	Bilateral papillitis; cure.
	O. S. Eth. Spl.	1'	—	—
Brawley	O. D. Fr.	.4	1'	Normal V. one year later.
	O. S. Fr.	.4	1'	—

(B) Unilateral Cases.

Reporter.	Sinus.	Vision.		Remarks.
		Before.	After.	
Beer	Fr.	Reduced	"Cure"	—
Galenzowski	Max.	0	1'	L. p. same day; V. = 1' 9th day.
Richet	Fr.	0	1'	Blind more than a month.
Risley	Fr.	.04	.5	Opt. neur. with V. = .4 noted four years before.
Trantas	—	0	Fing.	Blind for three months.
Coppez	Poly.	.05	1'	V. = 1' on 8th day.
Despagnet	Max.	.05	1'	—
Hoffmann	Sph.	Fing.	.6	V. = .6 few days later.
Würdemann	Sph.	.15	1'	V. = 1' few days later.
Würdemann	Fr., eth.	.2	Not given	Papillitis (personal communication).
?	Fr., eth.	.5	1'	"Case of papillitis recently seen" (personal communication).
Bourgeois	Eth., fr.	.02	1'	V. .02 to .25 in three days' time.
Courtaix	Max.	Reduced	1'	Other treatment without result.
Mann	Eth.	.25	1'	—
Riolacci	Max.	Fing.	"Cure"	"Complete cure"; V. not mentioned.
Desbrieres	—	—	Cure	Choked disc.
Nordquist and Pihl	Max.	.1	1'	Retro-ocular neuritis.
Same case, relapse	Max.	Reduced	1'	—
Hajek	Eth.	Fing.	1'	Usual treatment failed.
Mendel	Max., eth.	Stone blind	.6	V. improved same day.
Fliess	Eth., sph.	About blind	1'	"Reads finest print"; blind for months.
Kuhnt	Max.	.3	1'	Hæmor. neuro-retinitis.
Germann	Max.	.2	.7	Syphilitic; contracted V. F. restored.
Germann	Eth.	.5	.8	—
Galezowski	Max.	.25	1'	Papillitis; cure 15th day.
Johnson	Fr.	1'	1'	Choked disc; cure.
Valude	Fr.	1'	1'	Papillitis; cure.
Vieusse	Eth.	.02	1'	—
Lipscher and S.	Eth.	Reduced	"Cure"	—
Vossius	Eth.	.4	1'	—
Panas	Max.	0	Fing.	Cerebral abscess; exitus.
Wittemberski	—	.3	Improved	Final V. not given.
Holmes	Max.	.2	Improved	Musc. involv.; recurrence; exitus.
Rollet	Max.	—	Cure	Beginning opt. neur.; no data.
Coppez et Lor	Sph.	Reduced	Cure	Spont. drainage; sudden blindness.

(B) *Unilateral Cases*—continued.

Reporter.	Sinus.	Vision.		Remarks.
		Before.	After.	
Merz	Max., eth.	4	6	Choked disc.
Desbrieres	Fr.	Reduced	Cure	Papillitis.
Guttman	Max.	Reduced	"Cure"	Final V. not given.
Brawley	Fr.	2	1	V. = 1' 4th day.
Paunz	Eth., sph.	1	7	Hæmor. neuro-retinitis.
Posey	Eth., sph.	7	1	—
Posey	Eth., sph.	8	1	Beginning optic neuritis.
II. <i>Cases without Improvement.</i>				
de Lapersonne	—	—	0	Sarcoma.
de Lapersonne	—	Opt. at.	0	—
de Lapersonne	Max.	—	—	Progressive optic neuritis.
Mendel	Max.	Opt. at.	Fing.	—
Mendel	Max.	Opt. at.	0	—
Mendel	Max.	Opt. at.	0	Bilateral.
Groenbeek	Poly.	Opt. at.	0	—
Ripault	Fr.	Opt. at.	0	—
Posey	Eth.	Opt. at.	0	—
Martin	Fr.	Opt. at.	Fing.	—
Post	Sph.	—	0	—
Vail	Eth., sph.	Opt. at.	—	No data.
Pischel	Fr.	Opt. at.	Movements	Hæmor. neuro-retinitis.
Swan	Fr.	Opt. at.	0	Condition at time of first visit.
Abstein	—	—	3	No data.
Gaine	Max.	—	0	—
Snellen	Sph.	Opt. at.	—	Two cases; no data.
Lagrange	Fr., eth.	Opt. at.	3	Epithelioma.
Lagrange	—	Opt. at.	0	—
Zentmayer	Fr., eth.	Opt. at.	0	—
Desbrieres	Fr.	Opt. at.	0	—
Eales	Max.	Opt. at.	0	—
Jeantry	Max.	Opt. at.	—	No data.
Redlich	Sph.	Atrophic	—	Bitemporal hemianopsia; no data.
Spencer Watson	Fr.	Opt. neur.	—	No data.
Guilini	—	Opt. at.	0	Unrecognised.
Escat	Eth., sph.	—	0	—
Hastings	Eth.	—	No cent.V.	—
Weiss	—	—	—	Hæmor. neuro-retinitis (fatal).
Pollaseek	Sph.	—	0	Bilateral.
Richter	Sph.	—	1	No data.
Polyak	Poly.	Opt. at.	0	Bilateral.
Ewotsky	Eth.	—	5	Slight papillitis.
Kuhnt	Max.	—	06	—
Kuhnt	Max.	—	08	Hæmor. neuro-retinitis.
Salter	Max.	—	0	Hæmor. neuro-retinitis.
Kuhnt	Max.	—	Fing.	Operation refused.
Bronner	Sph.	—	—	Fatal.
Sandford	Sph.	—	0	Bilateral.

Other cases, not reported in detail or inaccessible to the writer, have been mentioned: by Neul, three cases; Litchwitz, two cases; Schmiegelow, Berger, Kohler, Hjort.

In August, 1906, a young man with total optic atrophy following the removal of a tumour at the base of the brain was referred by Dr. Joe Comroe.

CASE 35.—*Bilateral Optic Atrophy; Anurosis; due to Hydrocephalus Internus.*

In May, 1907, a lad, aged ten, with bilateral optic atrophy, due to hydrocephalus internus, was seen through the courtesy of Dr. Marie Hunt. The autopsy revealed hydrocephalus internus, following closure of the foramen of Magendie by a tumour.

CASE 36.—*Bilateral Neuro-retinitis Albuminurica Complicating Pregnancy.*

Mrs. W——, aged thirty-six, consulted the writer April 23, 1907. During recent pregnancy the vision in each eye had been reduced owing to neuro-retinitis albuminurica, as shown by urinalysis made by her physician.

Mr. CHICHELE NOURSE, in the discussion on Dr. Fish's paper, said: From the point of view of the rhinologist I desire to express my appreciation of the value of Dr. Fish's paper. I am aware of the work done by Dr. Ziem, of Dantzic, upon the connection between nasal and accessory sinus disease and diseases of the eye, and in my cases of sinus disease I have been for some time on the alert for any evidence of disturbance of vision, especially where the sphenoidal has been the sinus affected, and I have made careful note of the results. The most common visual defect has been one of refraction, but many others have been carefully studied and recorded by me. The tendency of modern medical science is to search for a definite tangible objective cause in all of those obscure affections which formerly we were satisfied to describe as idiopathic. In the light of common experience this, a rational attitude, is one with which I cordially agree. As a common experience we find that every effect is due to some cause. One expects to find in medicine a tangible objective cause for each effect. Dr. Fish's paper suggested a new field which might prove fruitful.

A CASE OF MENINGITIS SUBSEQUENT TO MASTOID OPERATION FOR CHRONIC DISCHARGE OF THE MIDDLE EAR IN A TUBERCULOUS SUBJECT, RELIEVED AND APPARENTLY CURED BY LUMBAR PUNCTURE.

BY PERCY JAKINS, M.D.,

Surgeon to The Central London Throat and Ear Hospital, Gray's Inn Road.

W. T—, aged nineteen, male, was admitted on July 8, 1907, to The Central London Throat and Ear Hospital suffering from a chronic discharge from the left ear of two years' duration. There was a sinus over the left mastoid which had been present for fourteen days. A considerable amount of tenderness had existed over the mastoid region, and was then present. The patient had no sickness. Sixteen years previously a mastoid operation had been performed. The patient had tubercular disease of the left knee and much wasting of the muscles of the calf of that leg.

On July 9, 1907, a complete radical mastoid operation was performed, and very extensive caries of the antrum and attic was demonstrated. The lateral sinus was exposed and also the middle cerebral fossa. The morning after the operation the temperature rose to 101·4° F. This gradually fell until July 21, when it began to rise to 101·4° F., and on the morning of the 23rd, at 10 a.m., it had reached 102° F. The patient had a slight rigor on that morning, and had vomited twice with constant headache. I reopened the wound on that day expecting to find a thrombus in the lateral sinus. The sinus was exposed for one inch, but was quite healthy and pulsating. The temperature that evening fell to 99·6° F., but two days later it rose again to 102·4° F. in the evening and was 100° F. in the morning. This continued until the 29th, when a further rise to 103·2° F. occurred. In the afternoon of that day lumbar puncture was performed, and 15 c.c. of cerebro-spinal fluid was removed under moderate pressure.

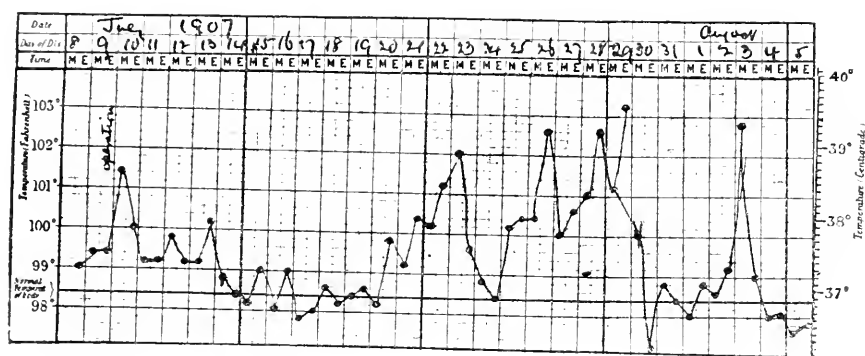
The report of my colleague, Dr. Wyatt Wingrave, on the material obtained was as follows:

"The fluid was slightly opalescent, and, without using the centrifuge, films showed an average of about six polymorphonuclear leucocytes in each field. After centrifuge polymorphonuclears were twenty-eight in each field with two lymphocytes. No bacilli of tubercle were present, but a large Gram-staining diplococcus was found which grew well on agar at 37° C. It was both intra- and

extra-cellular. The large number of leucocytes clearly indicated an acute meningitis."

The temperature on the following morning was 100° F., in the evening 97.2° F. It did not rise again until August 2, when it suddenly rose in the morning to 102.8° F., but at night time it had fallen to 99° F., as indicated in the chart subjoined.

In this connection I desire to contrast this case with one very similar which has been quite recently reported. In the *British Medical Journal* of December 28 there appears an interesting case of "Tubercular Meningitis and Recovery" reported by Dr. R. J. Buchanan of a child who had suffered from tuberculous meningitis and recovered. After an illness of four weeks and coma for eight



TEMPERATURE CHART TO ILLUSTRATE DR. PERCY JAKINS' CASE OF MENINGITIS IN A TUBERCULOUS SUBJECT SUBSEQUENT TO MASTOID OPERATION.

days lumbar puncture was performed, and 20 c.cm. of cerebro-spinal fluid removed, containing lymphocytes, but no meningococci were found. The symptoms were classical. An inoculation of $\frac{1}{4000}$ mg. new tuberculin was given. The child showed immediate signs of improvement, and gradually recovered consciousness. Three weeks later the above treatment was repeated, after which the child made an uninterrupted recovery, and when shown was intelligent and able to run about. Calmette's tuberculin reaction on the conjunctiva had been positive in that case.

My case recovered without injection of any kind of tuberculin. The lad improved greatly after the lumbar puncture.

The patient made a splendid recovery, and when seen on October 28 his weight was 8 st. 7 lb., and he looked in capital health.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF
MEDICINE—LARYNGOLOGICAL SECTION.*November 1, 1907.**J. B. BALL, M.D., President of the Section, in the Chair.*

THE PRESIDENT announced the receipt of several messages wishing success to the Section.

The following communications were made :

A MICROSCOPIC SPECIMEN OF A LOCALISED PULSATING GROWTH OF THE
MIDDLE TURBINATE BODY WHICH GAVE RISE TO RECURRENT
ATTACKS OF DANGEROUS EPISTAXIS.

BY ALEXANDER TWEEDIE, F.R.C.S.

The patient, a man, aged fifty-four, had had repeated severe hæmorrhages from the right nostril, uncontrolled by plugging, since October, 1906. In April, 1907, a pulsating area, resembling a diffuse nævus, was seen on the lower border of the middle turbinal. After removal of the middle turbinal the patient has remained well and free from further bleeding.

Dr. PEGLER said he thought it was a pulsating angioma. Much of the tissue was evidently glandular, in which the glands had undergone atrophic change. Many of the spaces were difficult to define, viz. those with the peculiar mucoid contents; they were lined with endothelium. He supported the proposition to refer this rare specimen to the Morbid Growths Committee.

Dr. DE HAVILLAND HALL asked how the growth was removed.

Dr. SCANES SPICER said the definite proof of spontaneous bleeding from the middle turbinate region was very important. He had seen three or four cases in which, by exclusion of other sources of hæmorrhage from the nose, he had strong reason for suspecting the middle turbinate, but he had not been able to prove it by ocular demonstration.

Dr. MCKENZIE said that last year, in the JOURN. OF LARYNGOL., RHINOL., AND OTOL., Dr. Wyatt Wingrave reported a case of navoid distension of the middle turbinate which did not cause epistaxis but hemierania.

Dr. DONELAN said he had had a case of secondary hæmorrhage following the use of adrenalin in removal of the middle turbinate. Having tried every other means during twenty-four hours, he remembered having seen Sir Morell Mackenzie use Ruspini's styptic with success in a similar difficulty. In this case a similar result promptly followed. It is

believed to be a preparation of the volatile oil of matico, but he was having an analysis made, as there seemed to be need of some styptic that would act promptly on the muscular coats of the blood-vessels when exhausted by the over-stimulation of adrenalin.

Dr. ATWOOD THORNE proposed that the specimen be referred to the Morbid Growths Committee, and this course was agreed to.

Mr. TWEEDIE, in reply, said the growth, together with the adjacent mucous membrane, had to be removed rapidly, as the bleeding was severe. This was effected with a spokeshave passed into the nose in the ordinary way, and located with the finger in the posterior choana. The nose was then firmly plugged. The plugging was removed after a few minutes, and all the bleeding had stopped. The maxillary antrum was laid open from the inferior meatus, as an empyema had occurred owing to the swollen middle turbinate body. The nose had been previously plugged on five occasions before the patient was brought to him, and on some of those occasions both with cocaine and adrenalin, but without effect on the epistaxis. Since the operation there had been no more attacks of hemorrhage.

PARESIS OF THE RIGHT VOCAL CORD IN A MAN, AGED FORTY.

BY DAN MCKENZIE, M.D.

The patient, a singer, first experienced three months ago some difficulty in taking the notes in the "upper register." On examination, there was some impairment of the movements of the right cord, there was also some pharyngitis and hypertrophic rhinitis with a small spur on the nasal septum. The lungs appeared to be normal on examination, and the history gave no indication of pulmonary mischief, but on examining the chest by means of the X rays, Dr. Hugh Walsham observed distinct signs of fibroid changes in both pulmonary apices.

Dr. FURNESS POTTER said he failed to detect any paresis. He thought the cord abducted quite actively.

Mr. CLAYTON FOX said he could not find any paresis.

The PRESIDENT said the man told him that his voice was now better than it had been, so that possibly the case had improved since.

Mr. NOURSE said it seemed to him that there was certainly some defective movement, and that the right cord did not move further towards the middle line than the cadaveric position.

Mr. ROSE said he examined the case, and agreed that the cord did not move on the right side.

Mr. HORSFORD said he carefully examined the case, and there was deficient adduction as well as abduction.

Dr. STCLAIR THOMSON said he thought both adduction and abduction were all right, but that there was paresis of the tensor muscles, particularly in the right vocal cord, and that gave the appearance of the other cord coming across the middle line, to a very slight degree. The paresis of the tensors would considerably impair the voice.

Dr. MCKENZIE, in reply, said he had little to say, in view of the con-

flicting opinions which had been expressed. He thought there was some impairment of movement on the right side, that the right cord did not come quite up to the middle line. The X-ray picture showed fibroid changes in the chest, which might or might not have something to do with the paresis. That the future course of the case would explain—whether it was due to recurrent paralysis of the tenth nerve. He did not think there had been any improvement while he had been seeing the patient.

FISTULOUS OPENING IN THE MIDDLE LINE OF THE NECK, JUST ABOVE THE
HYOID BONE, IN A WOMAN, AGED THIRTY-NINE.

BY DAN MCKENZIE, M.D.

A small lump had been present in this situation as long as the patient could remember; about a year ago this became painful and ruptured, discharging a watery fluid, and the sinus so formed continues to discharge. A cord-like swelling can be felt leading upwards and backwards towards the base of the tongue. Two points of interest are the exceptional position of the opening above the hyoid bone and the late period of life at which the sinus has opened.

Dr. WATSON WILLIAMS considered it was a case of persistent thyro-glossal duct, and that the only treatment would be to dissect out as much of the duct as could be got at. He believed the duct in the present case opened below the basi-hyoid, and that would point to it being a thyro-glossal duct taking the ordinary course.

Mr. DE SANTI thought it was a thyro-glossal cyst. In order to get it away completely it would be necessary to make a deep dissection, following up the fistulous tract to its very end, otherwise the attempt would end in failure. The old treatment was scraping, which proved useless. He advised operation in the case.

Dr. SCANES SPICER agreed with the opinions expressed as to the nature and treatment of this case. It took a patient of his nearly a year to get completely well after dissecting out a fistulous, suppurating, persistent, thyro-glossal duct; but she had remained well two years. He thought that, in the case shown, the swelling appeared to arise above the hyoid because of the cicatrix, which had been pulled up.

Dr. DUNDAS GRANT said there was a peculiarity about the case which had not been remarked upon, namely, a swelling close up under the chin, which was not usual in thyro-lingual sinuses, and which, he thought, required some explanation, though he was not able to give it. He had tried to pass a fine probe through the sinus, but had not been able to get it any distance. He thought the sinus was below the hyoid bone. In some points the case differed from typical thyro-lingual duct, particularly in the swelling beneath the chin.

Dr. STCLAIR THOMSON agreed as to the difficulty in dissecting out such conditions and the necessity for going deeply. He reminded members of the advantage of splitting the hyoid bone as the only method of getting at the root of the trouble. That was not an original suggestion, but was

advocated in a paper read before the Medico-Chirurgical Society by, he thought, Mr. Herbert Durham. There was no harm in splitting the hyoid, which took one down towards the foramen cæcum. If he had another such case he would use preliminary injections of adrenalin, so as to make the dissection as bloodless as possible.

Mr. CLAYTON FOX said that in a case on which he operated at the Metropolitan Throat and Nose Hospital he found it sufficient to pull forward the body of the hyoid bone, and thus get the duct free up to the foramen cæcum.

Dr. PEGLER said that Dr. Frederick Spicer and he had a case together, in which he had dissected out the duct without interfering with the hyoid, and there had been no recurrence.

The PRESIDENT said that, of course, many cases had been done without splitting the hyoid, but he understood Dr. StClair Thomson to mean that such a course facilitated the operation and ensured greater success.

Dr. DUNDAS GRANT said that electrolysis was not to be despised in such cases. He had a case which recurred, and before operating on it again he, with the co-operation of Dr. Lewis Jones, applied electrolysis to the whole length of the sinus; afterwards he dissected it out completely. The microscope showed that the epithelial layers were completely destroyed, and possibly, without the dissection, the electrolysis would have cured it. He did not divide the hyoid bone, and no recurrence took place, although more than a year had elapsed.

Dr. McKENZIE, in reply, said it was owing to Dr. Grant having discovered the swelling above the opening that he had omitted mention of what was really his opinion—that it was a thyro-glossal duct. His own opinion still was that the fistulous opening was above the hyoid bone; it might be that it tracked down under the hyoid, but the opening was above it. The other feature of interest was the age of the patient. As a rule such cases were much earlier seen than at thirty-nine years of age.

PART OF THE BREAST-BONE OF A CHICKEN, WHICH HAD BEEN IMPACTED IN THE LARYNX FOR NEARLY FORTY-EIGHT HOURS.

By F. A. ROSE, F.R.C.S.

The piece of bone is a thin plate measuring 1 inch in length and over $\frac{3}{4}$ inch in width. The patient, a girl, aged nineteen, choked violently while drinking some broth; the voice was completely lost, and there was some pain and discomfort, but no cough or dyspnœa, and she was able to swallow. The bone lay in the larynx, with its upper edge pressing against the posterior wall above the cords, and the lower end against the anterior wall of the trachea. Attention was drawn to the large size of the bone and to the entire absence of dyspnœa and cough.

Dr. DONELAN asked what was the nature of the impaction, and in what portion of the larynx it was fixed. He had a case in which a portion of rabbit's rib was impacted in the ventricles crossing the cords at the junction of the anterior and middle thirds, and it had been there since

two o'clock on the previous day. There was practically no dyspnoea, but a good deal of pain.

Dr. WILLIAM HILL said he thought the reason there was no dyspnoea in such a case was that the foreign body was often impacted transversely in the two ventricles, and thus acted as a dilator in the larynx. The absence of cough was not so easily explained.

Dr. JOBSON HORNE said the case reminded him of one which he saw some years ago, in which a piece of a celluloid ball had been lodged in the larynx for a month. The patient, he understood, had been a fortnight under treatment for bronchitis before it was found out.

Mr. ROSE, in reply, said the bone lay as a median partition in the larynx, one part being below the cords and the other part above. It was in an anterior posterior plane. The bone was so thin that the cords were almost able to meet. The patient could speak, but her voice was weak. At first he did not think there was anything in the larynx.

A CASE OF EXTREME FORM OF SEPTAL DEFLECTION.

By HAROLD BARWELL, F.R.C.S.

In this patient, a woman, aged twenty-five, the septum was bent completely back upon itself so as to form an S-shaped figure on vertical coronal section. Opinions were solicited as to what means might be adopted to rectify the deformity.

Dr. DUNDAS GRANT thought it should be dealt with by the sub-mucous resection method. It was impossible to tell beforehand whether the muco-periosteum could be turned out, because it occupied a portion of the bony septum with a deep groove, which was characteristic of traumatic deflection. If that could not be done, at all events he could do it on the side which was convex. He considered that that was the best treatment.

Dr. SCANES SPICER said he did not consider the case required any treatment of the septum. But he thought the respiratory habit of the patient was below par, and that she required to be taught to breathe properly.

Mr. DE SANTI said he was sure the case did not require operation.

Mr. STUART LOW said he agreed with the remarks of other speakers. It would be difficult to perform an operation on the septum without making a perforation, and perhaps a large one. He would prefer to perform the operation which he had introduced and described, viz. sub-mucous turbinectomy. It was not a condition which could be influenced with the cautery. The patient had not much nasal obstruction. There was some paresis of the palate, and the nasal roof was very low.

Mr. CLAYTON FOX said that the best operation would be the Krieg-Boenninghaus, in which one could make sure of securing the entirety of the mucosa on the right side, disregarding that on the left, where the sulcus was situated. But he would prefer to do nothing in this particular case.

Dr. STCLAIR THOMSON suggested to Mr. Barwell to withdraw the adjective "extreme" because, if that was applicable to the present case, he could show others which could only be termed outrageous. Unless the patient had symptoms referable to the condition, he would leave it alone.

In any case he would certainly object to the Krieg-Boemminghaus. There should be no direct attempt to destroy valuable mucosa. It was difficult to get the mucosa out of a deep depression, but the difficulty would be less if a few points were kept in mind. One was to operate always on the convex side, and another was not to be anxious to get out a big piece of the septum, the surgeon being content with getting it away in small sections.

Dr. DONELAN pointed out that there was not free respiration at night, as the patient could not sleep with her mouth shut.

Mr. CRESSWELL BABER thought that if there were any necessity for operation in the case—which seemed doubtful—sufficient breathing way might be obtained by removing the uneiform projection on the septum. He had seen a similar condition before, but not as marked as in the present case.

The PRESIDENT said he thought one could perform a submucous resection without much difficulty. He did not think one could guarantee not to make a perforation; it would happen sometimes, even in cases where it was not expected, but especially where there was some morbid adhesion.

Mr. BARWELL, in reply, said the condition was found by accident, and the patient had not asked him to operate or to treat her in any way; he could not make up his mind to do so until she wanted something done. But, if he were to operate, he thought he would attempt submucous resection. When the cartilage was taken out there would be a redundancy of mucous membrane, so that if there were perforation on the left side he did not think there would be much harm done. He must decline to recant the term "extreme"; the septum was so bent on itself that if a needle were pushed through at one spot it would penetrate the septum three separate times.

CASE OF A MAN ON WHOM THYROTOMY HAD BEEN PERFORMED ONE YEAR AND NINE MONTHS BEFORE FOR TUBERCULOUS LARYNGITIS.

By HAROLD BARWELL, F.R.C.S.

The patient, now aged twenty-three, suffered in August, 1904, from hoarseness, which rapidly progressed to complete aphonia. In June, 1905, he came under the care of Dr. Trevelyan, of Leeds, who diagnosed tuberculous laryngitis, and sent him up to Mount Vernon Hospital. The general health was good, and it was only after repeated examination that signs of phthisis could be detected at the left apex; sputum was scanty, and no tubercle bacilli could be found; the temperature was normal. There was much infiltration within both ventricles, hiding the cords. Thyrotomy was performed in January, 1906, the diseased part cut away, the larynx scraped, and a pigment containing lactic acid applied; the tracheotomy tube was removed on the table. After healing well the wound broke down, forming a sinus leading into the trachea. He was discharged in June with the larynx healed but a small sinus

remaining in the neck. This has now healed, the phthisis is quiescent; the voice is distinct though gruff, and the larynx remains healed as it was sixteen months ago.

DR. DE HAVILLAND HALL asked what was the condition of the lungs when the treatment was undertaken, and whether Mr. Barwell would have carried out the same treatment if the patient had been well enough off to go to a sanatorium for six months and have entire rest in the open air. It was astonishing to see the results from vocal rest and also physical rest in some such cases of tuberculous laryngitis.

DR. DUNDAS GRANT said the case was interesting as showing that it was sometimes justifiable to do thyrotomy in the presence of tuberculous laryngitis. In the present case he would have hesitated before doing it, but it could be done for exploratory purposes, because there were sometimes sequestra of one or other of the cartilages, the arytenoid, or possibly the posterior part of the cricoid, which might be removed by thyrotomy.

MR. HERBERT TILLEY said one must reckon in such a case to get the wound afterwards infected with tubercle bacilli. He had recorded a similar case in the *British Medical Journal* of a fortnight ago, in connection with the recent meeting of the Association at Exeter. It occurred in a male, suffering from what appeared to be malignant disease of the left cord, but who in other respects seemed healthy; there were no physical signs in the chest and no tubercle bacilli were found in the expectoration. Consultations were held and the view of malignant disease confirmed. When the larynx was opened the tissues were found to be soft, and suspicion was aroused that the disease might not be malignant; sections examined under the microscope showed the presence of tubercle nodules. The wounds at first healed well, and then the skin incision broke down, leaving a granulating sore half an inch wide. This eventually healed again, and the patient had remained well during the last two years.

DR. W. HILL said it was exceptionally necessary to do something surgical in such cases, as in one he had recently under his care, in which there was much ulceration and swelling in the larynx in the neighbourhood of the ventricle on the right side. He saw the case later with what he took to be perichondritis, with much swelling and fluctuation in the neck, which made it necessary for him to resort to surgery. He did a lateral laryngotomy, going through the thyro-hyoid membrane and scraping the ventricle. He found pus outside the larynx, and in following the abscess his instrument went through the thyro-hyoid membrane; possibly this had been perforated by granulations. The laryngeal condition was much improved by the operation, and the temperature became normal, but though the patient had been at Boscombe for six weeks the external wound in the neck had not yet healed.

DR. JOHNSON HORNE said he could support what had been said by Dr. de Havilland Hall, and what had several times been remarked by Dr. StClair Thomson concerning the treatment of such cases by rest of the voice. During a recent visit to Dartmoor convict prison, where rest of voice is enforced, he was impressed by the almost complete absence of laryngeal tuberculosis.

MR. BARWELL, in reply, said there was no firmer believer than himself in the treatment of such cases at sanatoria and by silence. He saw much laryngeal tuberculosis, but the present was the only case in which

he had ever done thyrotomy; it was an exceptional case. There was very slight disease in the lung, and it required several examinations to detect it at all. There was much infiltration in the larynx, and the disease could not have been got at properly by instruments inserted through the mouth. There had been fifteen months' aphonia before operation. He would not recommend the routine treatment of these cases by thyrotomy.

A CASE OF TUMOUR OF THE VOCAL CORD.

BY L. HEMINGTON PEGLER, M.D.

The patient, a woman, aged thirty, had a history of voice interference of some years' duration. From the anterior two thirds of the left vocal cord, which is red and swollen, the tumour depends; it is pale, œdematous, and rather thick, and at least twice the breadth of the vocal cord; flapshaped, it is attached by its entire base, and being very mobile is displaced upwards on phonation.

Mr. DE SANTI said he did not think there could be any doubt that it was an œdematous fibroma.

Mr. ROBINSON agreed that it was a fibroma.

Mr. BARWELL said he did not think it was a fibroma because it had a broad pedicle by which it was attached along the entire length of the vocal cord.

Dr. STCLAIR THOMSON said the case was almost identical with that of a woman he showed with a so-called "prolapse of the ventricle of Morgagni." It quivered in the same way as the present case did, hung over the cord, and extended two thirds of its length. It was removed, and reported to be simply œdematous tissue. He thought this was on the surface of the cord.

Dr. CLAYTON FOX said he agreed with Dr. Thomson, and he thought the part which was hanging over the upper border of the anterior third of the left vocal cord was the thin flat pedicle of a polypus, originating in œdema of one of the corrugations normally existing in the upper and outer wall of the ventricle.

Dr. PEGLER, in reply, said that if the last two speakers had had the opportunity, as he had, of cocaineising the larynx and examining the growth with the aid of a probe they would not hold their opinion. His investigations convinced him that the growth was an extension from the border of the left vocal cord, but he would show the patient again after its removal.

EXTENSIVE TUBERCULOSIS OF THE LARYNX IN A WOMAN, AGED FORTY, COMPLETELY CICATRISED AFTER TREATMENT WITH THE GALVANOCAUTERY AND TRACHEOTOMY.

BY STCLAIR THOMSON, M.D.

Dr. DUNDAS GRANT supported the recommendation of treatment by galvano-cautery.

A TUMOUR REMOVED FROM THE NASO-PHARYNX OF A GIRL, AGED ELEVEN, FIFTEEN WEEKS AFTER THE OPERATIVE REMOVAL OF ADENOIDS.

By E. FURNISS POTTER, M.D.

The patient complained of pain on swallowing and slight bleeding from the throat. The left choana was obscured by a dark-coloured lump attached to the posterior wall. This was removed and seen to be a firm, rounded body about the size of a small grape, enclosed in a membranous capsule, and had been attached by a pedicle to the posterior wall of the naso-pharynx. Prior to the adenoid operation a satisfactory view of the post-nasal space had been obtained and nothing unusual noticed.

Dr. W. H. KELSON reported that the microscopic section showed chiefly loose fibrous tissue with much extravasated blood: numerous oval spaces were present and some flattened and some round-cells. The tissue was much condensed on the surface and appeared to be only partially developed.

Mr. ROBINSON said he had previously seen tumours of that character, where a piece of adenoid had been imperfectly separated below, and had hung down, and the clot over it had become partially organised. He did not think there was anything more here than clot and some fibrous tissue.

Mr. ROSE said he thought it was blood-clot; he did not see any adenoid tissue.

Dr. PEGLER agreed that it consisted of blood-clot that was not completely organised.

FURTHER NOTES ON A CASE OF EXTENSIVE CELLULITIS OF THE RIGHT SIDE OF THE NECK.

(Shown at the meeting of the Laryngological Society in January, 1907, and again reported upon at the meeting in February, 1907.)

By PETER ABERCROMBIE, M.D.

The patient at that time presented septic adenitis and cellulitis on the right side of the neck, together with acute septic pharyngitis and œdema of the right side of the larynx. A deep-seated abscess formed in the neck, was opened on January 12, and healed up well, but dysphagia persisted, although less severely, and the redness and swelling of the right side of the epiglottis did not entirely disappear. Early in June a piece of the epiglottis was punched out for examination, and was reported by Dr. Wyatt Wingrave to be epitheliomatous. Trans-hyoid pharyngotomy was performed, and the right

side of the epiglottis was removed, the disease being entirely confined to that side. The subsequent progress has been most satisfactory, and all pain has disappeared.

The microscopic section was exhibited.

Mr. DE SANTI said he remembered the case very well when shown in January, and had expressed the opinion then that it was malignant. Others thought the glandular swelling a septic abscess of the neck, and there was a question whether the trouble was due to a chancre of the tonsil. The patient had had something done to the tonsil, and it was thought that septic infection of the cervical glands had followed. It was now shown with apparently an abscess healed, but there was still a most suspicious fixed, deep, glandular swelling. It is now reported that he has had epithelioma of the epiglottis, but that was not noticed or referred to at the January or February meetings. The question was whether malignant disease of the epiglottis had come on irrespective of the condition present in January. His own opinion was that malignant disease of the epiglottis was present in an early stage in January, with glandular involvement and septic infection of the affected glands. He did not think enough had been done by the operation of removal of half the epiglottis and nothing else. It was a dangerous operation for a case showing epithelioma of the epiglottis. If the case had been his, not only would he have removed the whole of the epiglottis, but all the glands possible on the affected side of the neck. There was a deep glandular swelling now, and this was almost certainly malignant in nature.

Mr. ROBINSON said there was a lump still present on the right side, which was probably a gland. He thought it should be explored. His opinion was still that it was malignant.

Mr. HORSFORD said he saw the case himself, but Mr. De Santi had said there was then no report of the condition of the larynx. At the time he (Mr. Horsford) described cedema of the right half of the larynx, and he did not think there was any growth below the epiglottis, but he now thought that the cedema may have been an early sign of the growth.

Dr. ABERCROMBIE, in reply, said the glandular swelling had been getting less the last few months, and he thought it was the remains of the old septic trouble.

FUNCTIONAL PARESIS OF THE PALATE AND CORDS IN A WOMAN, AGED TWENTY-THREE.

BY E. A. PETERS, M.D.

The patient was anæmic and had a general enlargement of the thyroid gland, with a thyroid cyst. The pulse was rapid, with a frequency of 100 to 110 per minute, but there was no definite proptosis. There had been rigidity of the deep muscles of the right side of the neck for two months. On attempted phonation there was incomplete approximation of the cords and the palate failed to move, but on stimulating the palate and larynx the normal movement could usually be obtained.

LARYNGEAL DISEASE IN A MAN, AGED FORTY.

BY FREDERICK SPICER, M.D.

The patient was first seen in 1903, complaining of hoarseness of three months' duration; the larynx presented diffuse inflammation, the cords were swollen and discoloured but freely movable, and there was a small nodule on the left cord. After simple treatment and rest of the voice he was discharged apparently cured in April, 1904. He was seen again in May, 1907, having lost his voice for six months; the larynx was inflamed, the left cord greatly swollen, covered with granulations and completely fixed, and an enlarged gland was palpable in the neck. Mercury and iodide were prescribed, and there has since been steady improvement, but there is still much thickening and jagged ulceration. There is no history of syphilis or tubercle, no loss of flesh, and a negative result on examination of the lungs and sputum. The exhibitor considered that the case was probably syphilitic.

Dr. SCANES SPICER said he thought it was commencing malignant disease. The age of the patient was in favour of it, and he thought it could very well be removed by thyrotomy.

Mr. DE SANTI regarded it as doubtful in nature, but advocated exploration by thyrotomy and dealing with whatever was found. If it were syphilitic, or something inflammatory, the disease could be removed in that way and no harm done, whereas if it were malignant—and his opinion somewhat inclined that way—the diagnosis could be established and the disease extirpated at the same time.

Dr. W. HILL recommended Dr. Spicer to punch out a piece, and if it proved to be malignant a thyro-fissure would be indicated. The history was much against malignancy, and he could scarcely imagine cancer remaining intrinsic for four years.

Dr. F. SPICER, in reply, thanked members for their opinions, and said he would probably have a piece removed. It was a very anxious case.

A CASE OF LARYNGEAL DISEASE FOR DIAGNOSIS.

BY SCANES SPICER, M.D.

The patient is a man, aged thirty-eight; hoarse ten years; crateriform ulcer on left ventricular band; small ragged process and ulcer on left vocal cord, but no impairment of mobility; much pain and difficulty of swallowing at times; rapid loss of weight.

Mr. BARWELL said it was almost impossible to give an opinion of any value from inspection alone. The appearance was consistent with tubercle. The hoarseness of ten years ago might be due to something

else; that hoarseness was now worse, and the present disease might very well be of comparatively recent date.

ANOSMIA, DRYNESS AND CRUSTINGS OF THE NOSE IN A MAN, AGED THIRTY.

By CLAYTON FOX, F.R.C.S.I.

The patient had been suffering from this complaint for the past year. The bridge of the nose was depressed, the alæ flattened, and the fossæ were abnormally wide. There was no atrophy of the turbinated bodies or mucosa, but the latter was more or less constantly covered with fine crusts and dust. Neither subjective nor objective factor has ever been complained of. The case was shown to elicit discussion as to the ætiology of the physical conditions of the nose on which the trouble probably depends.

RESULTS OF DOUBLE FRONTAL SINUS OPERATION.

By STCLAIR THOMSON, M.D.

A man, aged forty-six, shown before the Laryngological Society, January, 1901 (*vide Proceedings of the Laryngological Society of London*, vol. viii, p. 52), after an Ogston-Luc on right frontal sinus and a Caldwell-Luc on right antrum. The patient returned this year with suppuration in left frontal sinus. The ethmoid was first cleared, and the frontal sinus washed out on forty-four occasions. As no cure resulted a Killian operation was performed in July. The case affords the opportunity of comparing the Ogston-Luc with the Killian operation on the same patient. The left frontal sinus was very extensive.

A CASE OF SYMMETRICAL NEOPLASMS ON THE VOCAL CORDS.

By JOHNSON HORNE, M.D.

The patient, a woman, aged twenty-seven, had experienced impairment of voice since five years of age, which was not attributed to any illness. At that time the patient was taken to a throat hospital, but no treatment of an operative nature was undertaken. At the ages of twenty-two and twenty-five the patient underwent laryngeal operations for the removal of a growth. The larynx now presented a growth attached to the posterior third of the right vocal cord, and evidence of one having been removed from a

symmetrical position on the left vocal cord. The cords moved equally and freely, and the larynx, in other respects, presented a normal appearance. Dr. Horne showed the case prior to removing the growth.

A CASE OF DIFFUSE GUMMATOUS INFILTRATION OF THE LEFT HALF OF THE NOSE.

BY JOHNSON HORNE, M.D.

The patient, a man, aged twenty-seven, presented himself at hospital on October 23, 1907, complaining of extreme nasal obstruction of fourteen days' duration; the onset was gradual, without pain, but with a thin watery discharge. The lumen of the left nasal fossa was completely occluded by the apposition of the swollen external wall and septum. The swelling occasioned some external disfigurement on the left side. There was a history of a sore on the genitals six or seven years ago. The case was shown as one of the less usual forms of syphilis of the nose, and also to illustrate the rapidity with which such cases yield to the administration of mercury with iodide of potassium; within seven days a marked improvement in the condition had taken place.

A CASE OF NASAL SYPHILIS.

BY HERBERT TILLEY, M.D.

A man, aged thirty-nine, in whom the tip of the nose was very much swollen, congested, and extremely tender. The "columna nasi" was at least twice its normal thickness. The nasal septum was deeply ulcerated. The condition pointed to acute septic infection in addition to specific inflammation of the nose. The patient was taking large doses of iodide of potash, with mercury inunction.

Mr. STUART Low thought that most probably necrosed bone was responsible for the condition.

PARISIAN SOCIETY OF LARYNGOLOGY, OTOLOGY,
AND RHINOLOGY.

Meeting held November 8, 1907.

The President, DR. WEISSMANN, in the Chair.

THE RÔLE OF SYNCOPE IN HEMOPTYSIS.

Dr. BOSVIEL, after a tonsillotomy made by means of a cold snare in an adult, found an abundant arterial hæmorrhage from the inferior part of the anterior pillar. This hæmorrhage resisted all the ordinary means employed and only stopped at the end of four hours when syncope came on. He draws the conclusion that tonsillotomy with a cold snare ought to be carried out with slowness (lasting a minute and a half) and that in severe hæmorrhage it is better to welcome syncope than to fear it.

Dr. BOSVIEL exhibited a case of epithelioma of the velum palati removed by means of the bistoury without having caused the patient any discomfort.

SOME LEPROUS LESIONS IN THE NASAL FOSSA, THE PALATE AND
THE LARYNX.

Dr. CASTEX has observed in four lepers lesions of sufficient peculiarity to assist in the diagnosis. In the nasal fossæ these are large perforations of the septum with regular thin margins, the ulceration simulating a chancre with projecting margins and a diphtheritic covering, a polypus of the septum resembling somewhat a vegetating tuberculoma. The noses in all these cases were somewhat saddle-shaped. On the soft palate there were cicatrices in the form of a star with numerous radii in all directions drawing the uvula forward. This was a most typical lesion. In the larynx there was a sclerotic invasion of the supra-glottic portion causing an atrophy of the epiglottis and a leucoplastic change in the inter-arytanoid mucous membrane.

Dr. GEORGES LAURENS, in a paper brought before the Medical Society of the Hospitals ten years before, had made, along with M. Jeanselme, a study of twenty-five lepers in which they had observed fifteen cases of lesions of the nose, pharynx, and larynx; in all these cases it was a tegumentary and not a nervous leprosy.

With regard to the nasal lesions all the patients had at the commencement what appeared to be a chronic coryza characterised by sniffing and a flow of mucus. In the second stage there were attacks of epistaxis which were absolutely characteristic and which had almost the same diagnostic value as the primary hæmoptysis of tuberculosis. In the third stage, lastly, there was a trophic disturbance of the cartilage of the septum which resulted in perforation with disfigurement of the bridge of the nose. In many of the cases the mucous membrane and the vestibule were speckled with tubercles; they did not observe sensorial troubles, but on the other hand sensitive disturbances were constant and characterised by tactile and thermic anaesthesia of the pituitary membrane. In six out of ten cases the bacillus of Hansen was revealed in the mucus and in the blood from the nose; it seemed to the observers logical in all cases to look upon rhinitis as the place of entry of leprosy. The lesions of the tongue, the palate, the pharynx and the larynx recalled those of which Dr. Castex had just spoken; they were in every respect similar to those of secondary and tertiary syphilis, but there was one capital sign which never failed, namely anaesthesia.

DEMONSTRATION OF A SET OF INSTRUMENTS WITH A NEW FORM OF ILLUMINATION FOR ŒSOPHAGOSCOPY AND BRONCHOSCOPY.

Dr. CAUZARD exhibited a set of endoscopic instruments which had a small movable lamp in the interior of the tube. The instrument was easily manipulated, and was suitable for œsophagoscopy, direct laryngoscopy, and tracheo-bronchoscopy. The author had thus extracted foreign bodies from the œsophagus and the trachea in children, and had treated a stricture of the œsophagus with laminaria bougies, introduced under the control of the eye and left *in situ* for twenty-four hours.

MASTOIDITIS AND DIABETES.

Dr. FURET narrated the cases of five genuine diabetic patients affected with mastoiditis following on acute suppurative otitis. The five patients were operated on and were cured. One of them appeared to have become diabetic in the thirty-six hours following the operation, as if the operative traumatism had determined its occurrence. Dr. Furet had not followed any special rules as regards the operative proceedings. After having trephined the

antrum he was guided by the lesions he found. The sequelæ of the operation were very simple and called for no particular mention.

ACUTE MASTOIDITIS COMPLICATED WITH PARALYSIS OF THE SIXTH NERVES IN A DIABETIC. PERSISTENCE OF PROFUSE SUPPURATION FROM THE TYMPANUM AND PRODUCTION OF A DEEP CERVICAL ABSCESS IN SPITE OF FREE OPENING OF THE ANTRUM. THE RADICAL PETRO-MASTOID OPERATION WAS THE ONLY THING WHICH BROUGHT ABOUT THE TERMINATION OF THE OTORRHOEA AND THE CURE OF THE OCULAR PARALYSIS.

Dr. LUC, under this title, gave a *résumé* of the essential points in the case of a patient, aged fifty, who was attacked on December 24 last with acute suppurative median otitis, which brought about a spontaneous opening of the tympanum. About the same time the first symptoms of diabetes appeared, and they were recognised on January 14. Dr. Luc was called into consultation for the first time on April 4, and recommended antrotomy in spite of the absence of local mastoid signs, and the operation was carried out the following day. Contrary to what usually occurs, the suppuration in the tympanum continued profuse in spite of operation, and a month later a deep cervical abscess formed in spite of frequent and careful dressing, and this was complicated by œdema of the larynx, which was only subdued by means of free incisions. As the otorrhœa continued Dr. Luc decided to carry out, on May 18, the radical mastoid operation, which had the effect of putting an end to the tympanic suppuration, and at the same time bringing about the disappearance of the paralysis of the sixth pair of nerves, of which the patient had presented signs since the end of March.

Dr. LUBET-BARBOU, like his colleagues, thought that the presence of sugar was not a contra-indication for opening the mastoid if at the same time the other indications pointed to it; nevertheless, while diabetes was not a contra-indication, it was a reason for less good results immediately after the operation; he knew of five cases of death from coma in diabetes in his own and the practice of others.

Dr. CASTEX had operated recently on a diabetic old man suffering from suppurative mastoiditis. He had facial paralysis and violent mastoid pain. Antrotomy was followed by no regrettable sequelæ. The amount of sugar had not increased, and the patient was able to return to his habitual mode of life.

Dr. CARTAZ thought, from the point of view of prognosis in operations on diabetics, that it was necessary to take into consideration the quantity of sugar and the general state of the patient. The seriousness varied with the quality of the diabetes.

Dr. GEORGES LAURENS shared the opinion of his colleagues to the effect that every mastoiditis in a diabetic ought to be operated on. Up to the present he had had uninterruptedly a successful series of such cases and had no case of death to record. In all the cases of diabetic mastoiditis in which he had had to operate, he had been struck by the latency of the symptoms, the absence of temperature, the preservation of the general condition, slight hemicrania; alone the abundant auricular suppuration constituted the important symptom. In certain cases he had to operate in haste on account of a retro-auricular abscess under the periosteum which had developed without much disturbance and without pain. He thought that the operative prognosis ought to be extremely cautious, and from the point of view of intervention he attached great importance to rapidity so as to reduce to the minimum the traumatic shock. He operated upon his patients under a half narcosis from chloroform. In addition he recommended that they should be made to sit up in their bed as soon as they woke, especially in the case of fat patients, so as to avoid pulmonary congestion. Finally, in order to avoid dehydration, he made them consume a large quantity of water as soon as they revived during the first day after the operation. It was, perhaps, thanks to these precautions that his statistics had, up to the present, been so satisfactory.

Dr. BOULAY had only once had occasion to operate for diabetic mastoiditis; it was a patient who passed 40 grms. of sugar in the twenty-four hours; the only precaution he took was to operate as rapidly as possible, in twenty minutes, in order to shorten the chloroformisation. The patient got well in five weeks and lived for five years. Death took place as the result of rapid tuberculosis.

Dr. BOURGEOIS considers that there are two forms of danger which threaten the diabetic when operated on—traumatism and chloroform; to combat this latter danger we may replace general anaesthesia by local anaesthesia (cocaine or stovaine), and Drs. Bellin and Bourgeois had been very well satisfied by the result in two cases operated on at the Hospital Saint-Antoine.

Dr. LE MARC'HADOUR had operated on an old woman for simple mastoiditis; he thought that he could promise a cure. Two days afterwards the patient, who was diabetic without it being known, died of coma.

Dr. MAHU thought that before operating on a diabetic it was right to consider with care whether in this subject in particular there was more danger in the operation than in expectant measures. A man, aged fifty-four, a diabetic, affected with mastoiditis with distinct external symptoms, was unwilling to be operated on. One day he was attacked in the street by violent vertigo followed by a fall. Rinne's test, negative the day before, became positive the next day; the pus had reached the labyrinth. He was operated on with rapidity, but died, not on account of the operation, but of meningitis. If he had been operated on a fortnight sooner he would probably have been saved. On the other hand, an old man of seventy-two, likewise diabetic, the subject of mastoiditis with profuse suppuration, remained under Dr. Mahu's observation for three years, who congratulated himself upon not having operated.

Dr. WEISMANN concluded that it was evident that a diabetic ought to be operated on just like any other patient, but it was certain that it was necessary to make some reserve in regard to prognosis. Chloroform, long operations, antiseptics were dangerous in diabetics. Thus it would be well to replace chloroform by local anæsthesia with cocaine and to operate as rapidly as possible with little dilaceration and with careful asepsis.

MYELOID SARCOMA OF THE RIGHT NASAL FOSSA.

Dr. KOENIG related the case of a man, aged sixty, with arterial sclerosis, who, during the last two years, had no other symptom than bleeding from the nose when using his handkerchief, epiphora, and slight puffiness of the right cheek. There was no pain and no enlargement of glands. The author discovered in the right inferior meatus, near the choana, a dark soft tumour of the size of a hazel-nut and sessile. When examined by daylight after extirpation it was found to be of a dark brown chocolate colour. Microscopic examination demonstrated that it was a sarcoma with giant cells, which is rare in the nose.

A LARGE ANGEIOMA OF THE SOFT PALATE AND OF THE PHARYNX CURED BY ELECTROLYSIS.

Dr. PAUL LAURENS showed the cast of the pharynx and of the velum palati in a patient affected with angeioma, and who was now cured. The tumour, of the size of a pigeon's egg, had been completely reduced by fifteen sittings of monopolar electrolysis.

The active positive pole was attached to a needle stuck into the

tumour, and the negative indifferent pole to a pail of salt water into which the hand and the fore-arm were plunged (twelve milliamperes during ten minutes was the intensity). It was necessary to raise and lower this intensity slowly and progressively. In the same way the current had to be reversed in half a minute for the detachment of the needle, which was adherent to the slough.

THE EFFECTS OF MARMOREK'S ANTI-TUBERCULOUS SERUM IN LARYNGEAL TUBERCULOSIS.

Dr. G. A. WEILL reported that an experience of over two years showed that this serum had a specific action on recent and limited lesions of the larynx.

Twelve patients who were in these favourable conditions gave seven very good results, four improvements, and one failure.

Old or extensive lesions of the larynx were often improved for a variable time by the serum, as was seen eleven times in nineteen cases of severe laryngeal tuberculosis.

Improvement and diminution of the lesions were remarkably rapid under the influence of the serum, and it had never been found to be injurious.

Unfortunately its action was feeble in regard to advanced pulmonary lesions, which, however, often complicated laryngeal tuberculosis.

The serum was administered subcutaneously at first and then in the way of enemata. The daily dose was from 5 to 10 c.c. On an average the treatment was suspended for one week out of four.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Thirteenth Annual Session, held in New York City, May 30 and 31, and June 1, 1907.

WENDELL C. PHILLIPS, M.D., of New York, President, in the Chair.

SECOND DAY, MAY 31.

The Questionable Influence of so-called Diathetic Conditions in Diseases of the Throat and Nose in Children.

Dr. CHARLES G. KERLEY, of New York City, read this paper by invitation. He said that the most frequent disorder associated

with the nose and throat is enlargement of the tonsils and the presence of adenoids in the naso-pharyngeal vault. So great an aetiological influence did these conditions exert, not only over other diseases of the nose and throat, but over the entire organism, that attention was directed to them alone. Hypertrophied tonsils and adenoids were found in all classes, in cities, towns and country alike, practically an equal number of children being affected in proportion to population regardless of their residence. The strong and robust, the weakly, and those occupying intermediate positions in development and resistance, showed the growths with practically equal frequency. Such a distribution rather negatived the influence of any so-called diathetic state as being a predisposing factor, and it would therefore seem wise to look for a causative agent in some error in the life of the individual. A great majority of individuals in the first years of life were habitual suckers of the thumb, the "pacifier," or some other object. He had noted that in early cases of adenoids, those that were pronounced under the first year, the children were habitual suckers of thumb or "pacifier," and those infants who indulged the habit to a considerable extent showed more pharyngeal and facial congestion than those who were free from the habit. The vacuum produced through sucking on long objects which extend deeply into the mouth had a tendency to produce hyperæmia and stasis of the delicate blood-vessels of the mucous membrane of the parts. The post-pharyngeal space in many infants, particularly those with high-arched palates, was a very narrow slit, and the soft palate, pressing against the posterior wall, tended to produce an irritation, and consequent hypertrophy of the lymphoid tissue and an enlargement of the third tonsil. Another condition which occurred in all types and classes of children, and which might exert an influence on the development of these growths, was the so-called common cold. Children who suffer most from colds were the ones who develop adenoids most frequently, and the ones in whom adenoids were most prone to return after operation. Sugar eating children had been found to be most prone to taking cold, and by reducing or discarding the use of free sugar it was possible, after the second year, to do away with many of the colds, and consequently with the tendency toward the growth of adenoid vegetations. The terms "scrofulous diathesis" and "strumous diathesis" had been relegated to their proper positions among the many other medical misconceptions. With reference to the so-called lymphatic diathesis, it should be remembered that in all children there is a tendency to hyperplasia of the lymph glands

throughout the body, because of the lower resistance of children to irritation and infection. This varied in different individuals.

Dr. THOMAS HUBBARD, of Toledo, Ohio, was inclined to believe Dr. Kerley has over-estimated the importance of the thumb-sucking habit, which is not so much a causative factor of adenoids as it is a symptom or an indication that there is present some irritation which established this habit. He agreed with Dr. Kerley's remark concerning the sugar habit as a predisposing factor in taking cold. The only satisfactory treatment for children having this habit was to entirely prohibit this article of diet for a few weeks, after which the normal appetite for a variety of foods would displace the pernicious sugar habit.

Dr. J. E. SHEPPARD, of Brooklyn, was of the opinion that air as dry as that of the average school or home would have more effect in producing colds in the head than would either the thumb-sucking or sugar-eating habit, and that in the line of adenoid prevention it might be the duty of the physician to demand of those who heat houses that they provide apparatus whereby indoor humidity might more nearly approximate the average outdoor humidity than is now the case.

Dr. WILLIAM L. BALLENGER, of Chicago, said the question resolved itself into one of exciting causes and predisposing factors. The exciting causes were the various infections of the upper respiratory tract, particularly in the adenoids and tonsils, and the conditions leading up to the infection were the predisposing factors. There were various predisposing factors other than the ingestion of cane sugar, which was undoubtedly one. While sucking the thumb might have some slight predisposing influence in the production of adenoids, he had never considered it an important factor. In many instances children with no adenoids were thumb-suckers.

Dr. J. A. STECKY, of Lexington, Ky., emphasised the point of the greater toxic effect of cane sugar as compared with any other sugar. He had noticed that among the children of the Foundling Hospital in the south those who were given no sugar or molasses did not develop adenoids as did those on the regular hospital fare. Sugar undermined the intestinal digestion and predisposed to lymphatic development.

Dr. JOHN F. BARNHILL, of Indianapolis, Ind., agreed with the essayist that there is a lymphoid predisposition at this period of life, and with Dr. Ballenger's suggestion that these enlargements are due to infection. Adenoids and tonsils were susceptible to enlargement following the exanthemata, and enlargement of these

structures had often been found in association with decayed teeth or with faulty eruption of the teeth. Whatever the predisposing causes might be he believed them to be enhanced by germ-producing diseases.

Dr. GEORGE B. WOOD, of Philadelphia, said that adenoids should not be looked upon as the result of frequent colds, but, on the contrary, they were the most potent cause of rhinitis in children. Further, coryza in children was very hard to diagnose from an inflammation of the pharyngeal tonsil, and the general practitioner often made this mistake. The adenoid tissue of the pharyngeal vault developed before and immediately after birth, and in common with other lymphoid tissues had a distinct function in the manufacture of white blood cells. When the child needed to be protected from infection there was very apt to be hypertrophy of the hamogenic organs, so that it might be that enlargement of the tonsillar tissues was sometimes due to a general infection.

Dr. PERRY G. GOLDSMITH, of Toronto, Canada, called attention to the fact that removal of adenoids did not always relieve the child of colds, and that it was not uncommon to find recurring colds after their removal. He did not agree, therefore, that adenoids were always the cause of colds in children, as one of the speakers had remarked. He thought the operation for adenoids was performed very often simply because some lymphoid tissue was seen with a post-nasal mirror, or when an acute inflammation of this lymphoid tissue was present. Many of these cases did not require operation, and operating in such cases tended to bring discredit on rhinological practice.

Dr. GEORGE L. RICHARDS, of Fall River, Mass., cited two cases which had come under his observation. In one of these the child was not a nose-breather, yet it developed a suppurating ear and mastoiditis. Large amounts of adenoid tissue were found in the vault, yet the child had plenty of room for breathing through the nose. In the other case the child was a nose-breather all the time, and when it came to be operated upon, because the pediatricist in charge had found that it had repeated colds, a large amount of adenoid tissue was really the cause. In such cases there was infection and hypertrophy of gland tissue, which is originally normal and which has a protective office. When adenoid tissue has ceased to be protective it should be removed.

Dr. J. PRICE-BROWN, of Toronto, Canada, thought atmospheric conditions had much to do with diathetic conditions of the nose and throat.

Dr. KERLEY, in closing the discussion, agreed with Dr. Wood's view that the removal of adenoids by no means necessarily prevents the taking of cold, thereby causing no little disappointment to the parents of the patient. He felt that too much was often promised in this respect. As pointed out in his paper there were other factors in so-called cold than adenoids, one being the very important element of excessive sugar in the child's diet. He cited one of these cases in which the adenoids were said to have been removed three times by different New York laryngologists, and the coryza, more or less persistent, continued. He referred to ten cases that he had reported before the American Pediatric Society at Washington, this year, in each of which one or more operations for the removal of adenoids had been performed with but little relief to the nasal symptoms. These children were all sugar eaters in excess, and when sugar was removed from the diet the nasal discharge ceased to a large degree. His personal observation had been that infants who are habitual thumb-suckers develop adenoids more frequently than those who do not have the habit.

Hysteria of the Ear.

Dr. CHRISTIAN R. HOLMES, of Cincinnati, Ohio, in this paper said that the classification of cases of hysteria of the ear falls naturally in five categories, viz: (1) Cases in which there is no evidence of any disease of the ear; (2) cases in which a normal or abnormal ear is the seat of hysterogenic zones—as where certain sounds produce reflex phenomena in distant parts of the body; (3) cases in which there are abnormal appearances in the ear which can be explained, and which the subsequent history of the case demonstrates as temporary nervous and vascular phenomena (*e.g.* angioneurotic oedematous patches, changes in colour, etc.); (4) cases in which there are slight pathological changes in the ear—real, but insufficient or not of a character to account for the symptoms complained of; (5) cases in which the hysteric inflicts more or less damage upon the ear for the purpose of exciting sympathy or to induce the performance of an operation by the aural surgeon. The diagnosis often presented unusual difficulties, and it was unwise to make a hasty diagnosis of hysteria in cases where the initial examination reveals no adequate cause for the symptoms complained of, occurring as they do so frequently in neurotic subjects. It was now well known that it is possible for a diseased ethmoid or sphenoid cell, or for an atrophied middle turbinate, to

produce reflex disturbances in the ear so out of all proportion to the apparent local disturbance that the real cause of the ear trouble could be overlooked for a long time, even by careful observers. An illustrative case was that of a young woman of neurotic temperament who complained of pain and paræsthesia in the ear, and who was examined repeatedly with negative result. She had passed through the hands of one neurologist after another, had had an ocular muscular disturbance corrected, and had received energetic treatment for suspected hereditary syphilis. It finally became evident that she was suffering from ethmoiditis, and the inflammation of the accessory cavity with its extension to the neighbouring structures was recognised as the cause of the aural disturbance, which was advancing into a confirmed chronic catarrhal deafness. The original diagnosis of hysteria seemed to be justified until the discovery of the infected ethmoid cell. In another case a middle-aged man complained of persistent pain in the mastoid without any visible lesion. This was diagnosed as hysterical, chiefly because of his neurotic temperament. The mastoid was finally opened and an extensive osteo-sclerosis found. The otalgia was relieved by the operation, nor has it returned since. Should the diagnosis of hysteria be made in a patient with a normal ear, or with an ear with but very slight pathological changes, the patient should be referred at once to a neurologist. In those cases where there is more or less disease of the ear it became a matter of nice discrimination as to how it should be dealt with.

Dr. J. E. SHEPPARD, of Brooklyn, recalled three cases of hysterical mastoiditis which he had reported to this Society some years ago, the discussion of which brought out the fact that a number of the speakers had seen similar cases, some of which were operated upon and some not. Since that time he had seen a number of cases. As a rule they did not develop real tenderness over the mastoid, and all had failed to show evidence of active inflammatory trouble in the ear. The most striking case of the kind that he had seen was that of a young girl in her early twenties, who had had one ear operated upon three times, and the other twice for mastoiditis. She complained of tenderness, and was anxious to have the other ear operated upon the third time. She was a hospital case, and he had been sent for to do an immediate operation. Finding that she had no temperature, and that the skin over the mastoid region was macerated, he sent her back to the ward, where she was kept for three weeks without

developing any symptoms. Some time after she was dismissed from the hospital she returned complaining of pain so intense that she could not sleep. She was then sent to a neurologist, who could do nothing for her with bromides, etc. Such cases were always more prevalent after newspaper reports of mastoid operations, and were also seen where others of the family or friends had been operated upon.

Dr. WENDELL C. PHILLIPS, of New York City, would divide all so-called hysterical cases into two classes: first, cases of true hysteria, and second, those that have gone beyond the stage of hysteria and are really insane. One class of patients with imaginary conditions could be convinced, at least temporarily, that such conditions do not exist; others could not be convinced no matter what arguments might be employed. The latter class were insane. He had seen a number of such patients and believed that this broad classification should always be borne in mind. He had seen, particularly within the past year, a number of cases of hysterical mastoiditis. In one such case he had yielded to the temptation of employing the "blood-clot" method with perfect success. He cited the case of a woman who came to his clinic with the statement that she had a bedbug in her ear. He found nothing upon examination, but could not convince the patient of this fact. Deciding that the only way to dispossess her of the idea was to put in a bug and take it out again, he succeeded in finding a bug, which he inserted cautiously against the drum. When he drew it out and showed it to her she was greatly relieved, and he had not seen her since.

Dr. MAX A. GOLDSTEIN, of Saint Louis, Mo., cited a case, previously reported, of a neurotic young woman of twenty, who had a peculiar form of hemorrhage from the ear, which had lasted over a year. Every possible feature of the case which might have had a bearing on the hysterical phase was eliminated—vicarious menstruation, malingering, etc.—and, as a last resort, the patient was sent to the hospital and watched closely for three days and nights. Finally her head was placed in a plaster cast for two days, the patient having been told that an operation would be performed. The external meatus was packed with gauze and the plaster-of-Paris bandage applied. After removal of the cast there was no further bleeding, and the hearing, which had been *nil*, was normal.

Dr. WALTER B. JOHNSON, of Paterson, N.J., referring to the question of temperature, which some of the speakers seemed to consider indicative of the presence of disease, said he had seen an

hysterical case run a temperature of 109° F. with no evidence of any kind of disease. The patient finally fell into the hands of a gynaecologist who made an exploratory incision, sewed it up, and the patient was absolutely relieved thereafter. He cited several cases which he had treated successfully by means of suggestive therapeutics. It was a question, however, how far this matter of suggestion should be carried. He believed that these hysterical patients do really experience suffering.

Dr. HOLMES, in closing the discussion, emphasised again the fact that the diagnosis in these cases presents unusual difficulties, and should never be made hastily. It was probable that the subject would be cleared up by a better understanding of the various reflex disturbances, and by further study of the pathology of the accessory sinuses.

(To be continued.)

Abstracts.

PHARYNX.

Rolleston, J. D.—*Relapses in Diphtheria.* "Brit. Journ. of Children's Diseases," vol. iv, p. 332.

The author concludes from his investigations that relapses occur in a little more than 1 per cent. of all cases of diphtheria. They are less frequent than late tonsillitis in convalescence from diphtheria, and they do not occur before the third week. The frequency of serum rashes after re-injection is much greater, their appearance is earlier, and their phenomena more intense than usual. Relapses require to be distinguished from angina redux, scarlet fever, and late tonsillitis. They are usually milder than the primary attack and their causation is obscure. As regards treatment, comparatively smaller doses of antitoxin should be employed in the treatment of relapses.

Macleod Yearsley.

Barnes, H. A.—*Prophylaxis of Post-operative Diphtheria.* "Boston Med. and Surg. Journ.," May 30, 1907.

This investigation was suggested owing to a fatal case of diphtheria following an operation for tonsils and adenoids in the out-patient department of the Massachusetts General Hospital. The conclusions come to are that the Klebs-Loeffler bacillus may be present in the nose or throat of from 1 per cent. to 3 per cent. of average healthy individuals. They have, however, little or no clinical significance. In direct or indirect contacts, however, they may be found in a much larger percentage of cases, and are likely to prove virulent. Cultures in individual cases only are essential. The author advises examination of every patient when the appointment for an operation is made, a second the day before operation, and, if there are any suspicious signs or any history of sore throats in the family or at the school, cultures should be taken; finally, a third examination should be made before anaesthesia.

Macleod Yearsley.

NOSE.

Oppikofer, E. (Basle).—*On Calculus of the Antrum of Highmore.* "Arch. für Laryngol.," vol. xx, Part I.

Although concretions (rhinoliths) are found not very infrequently in the nasal cavities proper, their occurrence in the accessory cavities is exceedingly rare. The writer found record of only five cases, in each of which the maxillary antrum was affected. The first two cases are recorded in ancient medical works of the years 1686 and 1738 respectively. So similar, however, are the two accounts that they must be regarded as referring to one and the same case, the second being merely a copy from the first. The patient suffered for many years from a vesical calculus, for the removal of which he underwent an operation. Subsequently he was troubled by the gradual onset of great pain in his right upper jaw, which was followed by the appearance of an external swelling. This was incised and a hard irregular stone of the size of a pea (or a bean, as in the second account) was removed. The remaining three cases were described by Zuckerkandl, Harke, and Kahnity. In the first of these the stone was of the size of a hazel-nut and exactly corresponded in its structure with the ordinary rhinolith. The nasal wall of the antrum was bulged into the nose and the alveolar process was expanded. The case was observed only after death, and owing to advanced decomposition the condition of the mucosa was undeterminable. In Harke's case, also observed *post-mortem*, the stone was the size of a pea and the antrum was full of stinking pus. The case reported by Kahnity came under treatment for copious nasal hæmorrhage. The right antrum was found to contain offensive purulent masses and a chalk stone of the size of a hazel-nut, which had apparently eroded a branch of the internal maxillary artery.

The author relates a case observed by himself. The patient was a woman, aged sixty, who had suffered for twenty years with muco-purulent discharge from the right nasal cavity, which, as a rule moderate in amount, occasionally became profuse and foetid, and was accompanied by pain in the right side of the face. Exploratory puncture was performed and the right antrum was found to contain a considerable amount of foetid pus. Eventually the Caldwell-Luc operation was undertaken and on the floor of the cavity was found an irregularly round concretion, rather larger than a hazel-nut. In chemical composition this stone resembled a rhinolith. On section with a saw after embedding in celloidin no foreign body could be found in its interior. Histological examination of pieces of the mucous membrane of the antrum showed extensive carcinomatous change. As this was still quite confined to the mucosa and the latter had fortunately been completely removed, no recurrence took place. In this case the shape of the upper jaw was unaltered, while in the case recorded in 1686 there was external swelling, and in the example observed by Zuckerkandl the alveolar process was expanded. The author thinks that the change of shape which occurred in these two cases may have been due to carcinoma; such expansion of the upper jaw would probably have eventually occurred in his own case had the disease not been cut short.

Thomas Guthrie.

Mader, L. (Munich).—*Experiences of Killian's Radical Operation for Chronic Empyema of the Frontal Sinus, and an Account of a New Method of treating Empyema of the Maxillary Antrum.* "Arch. für Laryngol.," vol. xx, Part I.

The author of this paper gives an account of the results he has obtained in fourteen cases of disease of the frontal sinus, in all of which

Killian's radical operation was performed at least six months before the time of writing.

Pain is in all cases either completely absent or greatly diminished; in no instance has it returned in its former severity. Pain seldom disappears immediately after the operation: it usually passes away gradually as healing proceeds.

Discharge in a few cases has ceased, but in most it still continues, though in much diminished quantity, and consisting mainly of mucus. The reason for this is that the preservation of the orbital bridge makes complete obliteration of the cavity impossible, and the whole of the space behind the bridge is not, as Killian had hoped it would be, filled up with scar tissue or orbital fat.

The *cosmetic result* is, in the great majority of the cases, excellent, but in a few with very high and deep cavities fairly pronounced depressions have resulted.

The *general health* has in all cases strikingly improved, and several patients have completely lost the mental depression from which they previously suffered. All cases, with a single exception, are now following their accustomed employment.

The author regards Killian's method as, on the whole, better than any other, and attributes the unfavourable results which some surgeons have obtained to incompleteness of operation. He lays especial stress on resection of the supra-orbital nerve and extensive removal of the ethmoid cells. He also removes carefully from the ethmoid region all shreds and tags of mucous membrane which might subsequently help to narrow the fronto-nasal passage. In most cases he considers drainage unnecessary, but in a few, in which the passage between the orbital bridge and the posterior wall of the sinus is narrow, he employs a glass tube which reaches from the orbital bridge to the anterior nasal opening.

A short description is added of the author's method of treating chronic empyema of the maxillary antrum. He believes strongly in local post-operative treatment under control of the eye through a large opening in the canine fossa, and has obtained good results by exposing the interior of the cavity to the action of light. More recently, however, he has employed the galvano-cautery, using special burners for the purpose, and thoroughly cauterising each of the walls of the cavity separately at intervals of three or four weeks. The resulting inflammatory reaction is never excessive, and pain is allayed by the application of ice. The method has hitherto been employed in seven cases, of which three are still under treatment and two are almost cured, the discharge being greatly diminished. The remaining two are now quite free from discharge, although they were cases of old standing which had been under treatment for long periods, and had never shown even a temporary cessation of the discharge.

Thomas Guthrie.

EAR.

Eagleton, W. P. (Newark, U. S. A.).—*The Value of v. Stein's Symptom in the Diagnosis of Labyrinthine Suppuration.* "Arch. of Otol.," vol. xxxvi, No. 3.

In 7 out of 17 consecutive cases of tympanic exenteration labyrinthine fistula was found. In two of these both the cochlea and semicircular canals were involved, in 5 the semicircular canals alone. From a methodical application of Stein's method in between two and three hundred persons the author was convinced of their great value in the diagnosis of labyrinthine suppuration.

Dundas Grant.

REVIEW.

Hygiene and Therapeutics of Diseases of the Mouth. By Dr. CRUET (with preface by Professor LANNELONGUE). Second edition. Paris: Masson et Cie, 1907.

This work contains, within its comparatively small bulk, a large amount of information, placed at the disposal of practitioners in general by one who is evidently well instructed in pathology, although devoting himself exclusively to the practice of odontology. There can be no doubt that dental surgeons are often the first under whose notice diseased conditions of the mouth are apt to come, and it is to be hoped that this book will be well studied by those who practise the author's speciality. The same may be said of the laryngologist, and to him this book is also one of the greatest interest. The author is obviously fully imbued with the now widely accepted impression that many general infections have their local entry through the mouth, and all the more readily when the mouth is in a diseased condition. The rich flora has been well explored by Müller and other investigators, but fortunately the healthy mouth possesses powers of resistance which the author analyses with some skill. Thus (p. 40) he discusses the question as to whether the saliva possesses bactericidal properties and decides it in the negative, although admitting that under favourable circumstances it provokes abundant diapedesis of phagocytes. He prefers, however, the mechanical explanation that the saliva in the movable cavity of the mouth exercises an incessant sipping action and prevents the micro-organic elements from producing their injurious effect. A dryness of the mouth and a diminution of saliva allows them, however, full scope. An interesting description is given of the various forms of ulceration of the mucous membrane of the mouth, and there is some reference to treatment of various diseases, such as leucoplakia, with regard to which opinions differ so much, the author's opinion being that in most cases there is an underlying diathesis—the syphilitic—which is often overlooked. The chapter on the hygiene and the general therapeutics of the mouth will be found full of valuable hints, and the author dwells particularly on the importance of the disinfection of that cavity before any operations are carried out in its interior. The subject of pyorrhœa alveolaris is, of course, dealt with in considerable detail under the name of alveolo-dental osteo-periostitis or peri-odontitis, and the opinion expressed is that the affection is polymicrobial, the organisms most frequently found being the streptococci and staphylococci. The treatment chiefly recommended is the surgical one, which consists mainly in laying open with scissors the alveolar sac as far as can be done and applying the actual or galvanic cautery freely to the margin of the wound. There is no reference to the vaccine treatment such as Goadby, Carmalt-Jones and others have practised with some success. The ocular and aural complications of diseases of the teeth form the subject of interesting paragraphs, the former being naturally the more extensive. Among the aural complications are included infection of the tympanum through the Eustachian tube as the result of abscess round the wisdom tooth, also otalgia and occasional tinnitus. The writer very properly insists on the advisability of treating the diseased tooth by the conservative method rather than by simple extraction. A cachet is given to the book by the well-known Professor Lannelongue who speaks highly as to the lucidity with which the author expresses his views. The volume is small, convenient to hold, and excellently printed.

THE
JOURNAL OF LARYNGOLOGY.
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

LARYNGEAL PARALYSES IN GOITRE.

THE abstract of a paper on this subject by Dr. Eugène Félix, of Bucharest, on another page of this journal¹ will be found to afford most interesting reading, particularly with regard to the occurrence of paralysis of the recurrent laryngeal nerve after operation. Unfortunately in a good many of the cases collected by Dr. Félix this point was not laryngoscopically investigated beforehand. In the reports of 3000 cases of operation laryngeal paralysis was noted in nearly 200, or between 6 and 7 per cent. It is interesting and disquieting to learn that the paralysis may make its appearance some months after the operation. On the other hand, a paralysis occurring at the time of the operation may be due simply to traumatic disturbance from manipulation, or to chemical irritation by antiseptics such as carbolic acid, and may pass off with comparative rapidity. Again, laryngeal paralysis due to the pressure of a goitre is frequently, but by no means invariably, cured by the operation.

Mr. James Berry, in his recent communication to the Surgical Section of the Royal Society of Medicine, reported 274 further cases, and referred particularly to the question of concomitant recurrent laryngeal paralysis.

A number of these presented dysphonia or aphonia as pre-

¹ Page 126.

operative conditions, but in only one was there definite recurrent paralysis. Operation made no difference in this case. In two cases the recurrent laryngeal was injured by the operative measures. In one of these a portion of the nerve involved in a "hard papilliferous tumour believed to be malignant" was intentionally removed, but recovery of the voice, to an "almost normal" condition, was found to have taken place when the case was examined several months later. In the second case mild suppuration, following the enucleation of a cystic adenoma, was followed by paralysis of one cord.

In the series operated on by this writer it will be observed that the percentage of cases in which the recurrent nerve was injured during operation was very low. The larynx was examined with the mirror, both before and after operation, in all cases.

CONTRIBUTION TO THE PATHOLOGY AND THERAPY OF SUBMUCOUS INFLAMMATION OF THE LARYNX (LARYNGITIS SUBMUCOSA ACUTA).

BY DR. JOHN SENDZIAK,
Warsaw, Poland.

A paper read in the Oto-laryngological Section of the Tenth Congress of Polish Physicians and Naturalists, held at Lemberg, July 23, 1907.

GENTLEMEN,—The first mention of œdema of the larynx we find in Hippocrates, to whom also was known erysipelatos inflammation of the upper air-passages. But we owe the first exact paper—clinical and anatomical—on the subject of œdema of the larynx of inflammatory origin to the contemporaneous physicians of the eighteenth century, Boerhave, Van Swieten and Bichat. Darlac has also described œdema of the larynx of infectious (erysipelatos) origin.

Bayle, in the beginning of the nineteenth century, however, was the real scientific creator of this œdema of the larynx. This author included in the term "œdema glottidis" laryngeal œdema of inflammatory origin as well as phlegmon of the larynx. In the year 1825 Bonilland employed the term "laryngitis phlegmonosa," and Cruveillier in the year 1832 "laryngitis submucosa." This convenient term is at present mostly employed. In the year 1852 Sestier enlarged Bayle's theory of œdemas of the larynx, having

added those conditions of non-inflammatory origin. To these pro-
 gitis-phlegmonosa," this
 na laryngea infiltrata."
 assei, of Naples, in 1885¹
 f the larynx—erysipelas
 process. He maintains
 ed by himself that ætio-
 s of the larynx is identical
 of infections origin or
 however, it differs from
 the mucous membrane of

affirmation in a series of
 ose of Bryson Delavan,
 others, including among
 Omochowski,³ the author
 er on erysipelas of the

y rate clinically, and to a
 st be distinguished from
 888 Senator, of Berlin,
 infectious phlegmon of
 whole series of papers,
 h, Germanig, and many
 and Obtutowicz.

n that the pathological
 ical with inflammatory
 her, Semon in the years
 r acute œdema, that is,
 well as erysipelas and
 nally angina Ludovici, as
 acute septic inflamma-

some order into chaotic
 of the larynx, was the
 05.³ This author, basing

1885, No. 1.

ge.

e.

Various Forms of Acute Septic
hir. Trans., 1895.

lin, 1895, p. 68.

operative conditions, but in only one was there definite recurrent paralysis. Operation in cases the recurrent la measures. In one of the "hard papilliferous to intentionally removed, to normal" condition, was was examined several suppuration, following to followed by paralysis of

In the series operated the percentage of cases during operation was to the mirror, both before :

CONTRIBUTION TO THE SUBMUCOUS INFLAM- MATION OF THE SUBMUCOSA

By

*A paper read in the Oto-laryngological
Society of Polish Physicians and Surgeons*

GENTLEMEN,—The first in Hippocrates, to whom of the upper air-passages clinical and anatomical-inflammatory origin to eighteenth century, Boerhaave has also described œdema (swellings) origin.

Bayle, in the beginning was the real scientific author included in the of inflammatory origin : year 1825 Bonilland and Cruveilhier in the convenient term is at present Sestier enlarged Bayle's

added those conditions of non-inflammatory origin. To these processes, with which he also included "laryngitis-phlegmonosa," this author gave the general name "angina laryngea infiltrata." Friedreich (1858) supports this theory. Massei, of Naples, in 1885¹ has distinguished inflammatory œdemas of the larynx—erysipelas laryngis—as an independent pathological process. He maintains from fourteen cases of this disease observed by himself that ætiologically and partly anatomically erysipelas of the larynx is identical with inflammatory œdema of the larynx of infectious origin or with phlegmonous laryngitis. Clinically, however, it differs from them, developing often independently on the mucous membrane of the larynx.

This opinion of Massei has found confirmation in a series of papers, of which I shall mention only those of Bryson Delavan, Fasana, Schech, Davis, Biondi and many others, including among us (Poles) those of Sokolowski² as well as Dmochowski,³ the author of an excellent anatomical-pathological paper on erysipelas of the upper air-passages.

This latter author maintains that at any rate clinically, and to a certain degree anatomically, erysipelas must be distinguished from phlegmon of the larynx. In the year 1888 Senator, of Berlin, published a paper on primary acute infectious phlegmon of the pharynx, which also has produced a whole series of papers, those, namely, of Sandgraf, Hager, Barnich, Germanig, and many others, among others with us Sokolowski and Obotowicz.

All these authors incline to the opinion that the pathological process described by Senator is identical with inflammatory œdema or erysipelas of the larynx. Further, Semon in the years 1890-5⁴ generalises still more, regarding acute œdema, that is, œdematous inflammation of the larynx, as well as erysipelas and phlegmon of the pharynx and larynx, and finally angina Ludovici, as identical pathological processes, namely acute septic inflammations of the pharynx and larynx.

A classical work, which introduced some order into chaotic opinion as to the essence of œdemas of the larynx, was the monograph of Kuttner, of Berlin, in 1895.⁵ This author, basing

¹ "Erysipela della laringe," *Riv. clin. e terap.*, vii, 1885, No. 1.

² *Gazeta Lekarska*, 1892, No. 32. In Polish language.

³ *Pam. Tow. Lek. Warsz.*, 1904. In Polish language.

⁴ "On the Probable Pathological Identity of the Various Forms of Acute Septic Inflammations of the Throat and Neck, etc.," *Med. Chir. Trans.*, 1895.

⁵ "Larynxœdem und Submucöse Laryngitis," Berlin, 1895, p. 68.

upon nine cases minutely examined by himself, maintains that clinically there was no reason to distinguish erysipelas from phlegmon of the larynx, the more so as even the ætiology of these diseases was identical, as the simple *Streptococcus pyogenes* does not differ in any way from the pseudo-specific organism of *Erysipelas "streptococcus Fehleiseni."* Kuttner differentiates all inflammatory œdemas, from non-inflammatory ones, which appear in the form of serous infiltration of the submucous connective tissue, as in the case, for instance, of diseases of the kidneys, lungs, vessels, heart, etc. To œdemas of the larynx of inflammatory origin Kuttner gave the name used by Cruveilhier "laryngitis submucosa acuta," subdividing it further into two groups:

(1) Œdematous inflammatory processes of the larynx of infectious origin, in which he includes Massei's erysipelas, as well as Senator's acute infectious phlegmon of the pharynx; and—

(2) Inflammatory œdemas of the larynx, non-infectious, which appear after burns, traumatism, etc.; to this group the author includes also so-called inflammatory secondary œdemas of the larynx in the course of syphilis as well as tuberculosis.

In the form of laryngitis submucosa acuta infectiosa Kuttner distinguishes three periods: (1) Stadium œdematosum. In this period we have to do only with œdema and hyperæmia. It is identical with Massei's erysipelas of the larynx. (2) Stadium plasticum; this is characterised by parvicellular infiltration as well as œdema. (3) Stadium suppurativum, which characterises itself by the formation of pus in the soft tissues of the larynx; it corresponds with the form known under the term "laryngitis phlegmonosa." To the above classification, agreeing in principles with Kuttner's opinion on the essence of œdematous processes of the larynx, Rupprecht¹ adds still a fourth period, namely septic. Finally, Heyman and Meyer,² authors of the most recent paper, published in the *Festschrift* for Professor Schroetter this year (1907) propose the division of the inflammatory processes of the larynx into two forms—simple inflammatory and septic or phlegmonous.

These authors partly support Massei's theory as to the independence of laryngeal erysipelas in the clinical sense.

I have already mentioned that in Poland Dmochowski distinguishes erysipelas from phlegmon of the larynx anatomic-

¹ "Zur Kenntniss der Laryngitis Submucosa Acuta," *Monats. f. Ohrenh.*, No. 2, 1905.

² "Zur Ätiologie des Fehlepfseudeurs," *Zeit. f. klin. Med.*, B. 62, 1907.

ally. Recently, in 1906, Pierce,¹ in America, maintains that these processes differ even in an ætiological sense as *Streptococcus pyogenes* seems to differ morphologically from *Streptococcus erysipelatis Fehleiseni*. The essence of œdematous processes in the larynx in general and of laryngeal erysipelas in particular remains, as formerly, a source of disputation. I incline more to Kuttner's resp. Semon's views that laryngeal erysipelas does not show any independent pathological process. As to œdematous processes of the larynx in general Kuttner's division seems to me to be complicated. It can be simplified in the following manner: Group 1: Non-inflammatory laryngeal œdema (œdema-laryngis); Group 2: Inflammatory laryngeal œdema (laryngitis submucosa acuta). The latter is divided into (a) primary (idiopathic) and (b) secondary (symptomatic).

Primary laryngeal œdema (laryngitis submucosa acuta primaria) as to its causal agents, may be divided into: (1) simple (after burns, trauma, etc.), and (2) infectious (the so-called laryngeal erysipelas).

Both inflammatory laryngeal œdema, primary as well as secondary, as regards their course can be divided into (a) œdematous (laryngitis submucosa acuta œdematosa), and (b) suppurative (laryngitis phlegmonosa).

Acute submucous inflammation of the larynx (laryngitis submucosa acuta) belongs, at least in our climate, to the relatively frequent pathological processes demonstrated in 1888 by Sakotowski.²

Out of more than 21,000 patients, private as well as hospital practice, I noted 108 cases of this disorder, being about 5 per cent. of the total. I am of opinion that this process appears much more frequently than is observed by laryngoscopical examination. I am convinced that if the larynx was examined in every case of peritonsillar abscess we should often find secondary œdema of the larynx. So also in examining the larynx of children many cases of so-called primary croup of the larynx would show dyspnœa in the acute œdema of the subglottic region (laryngitis hypoglottica acuta), as I had occasion to convince myself, among others, in one case.

As regards the age of the patients suffering from inflammatory œdema of the larynx, I noticed the following figures in my cases: From 0 to 5th year, 2 cases; from 5th to 10th year, no cases;

¹ *Trans. Amer. Laryngol. Assoc.*, 1906.

² *Gazeta Lekarska*, 1888. In Polish language.

from 10th to 20th year, 8 cases; from 20th to 30th year, 26 cases; from 30th to 40th year, 36 cases; from 40th to 50th year, 24 cases; from 50th to 60th year, 6 cases; from 60th to 70th year, 6 cases; together, 108 cases.

This disease we mostly meet in the later age (between 20 and 50, namely, 86 times in 108 cases). The youngest of my patients was $2\frac{1}{2}$ years (laryngitis hypoglottica acuta), the oldest was 70 years old (*œdema lig. aryepigl. et cart. aryt. dex.*).

There were 84 males and 24 women—three and a half times more males than females.

As to the occupation of the patients with acute submucous inflammation of the larynx, the greatest number were farmers (eight cases), civil officers and waiters (six cases each), due to catching cold, dust, etc., and other conditions to which such patients are subjected.

Causes of the inflammatory œdema of the larynx.—As I have mentioned, we divide the cases all into two principal groups: Primary or idiopathic—a group which Friedreich, and, latterly, Hajek, as well as Heymann and Meyer, do not accept—and secondary or symptomatic. The primary group is again subdivided into simple and infectious.

The causes of the first are of three different kinds: Thermal, those chiefly due to sudden changes of temperature, mainly connected with certain occupations, for instance, with the working in sugar factories, bakehouses, etc. In the same category of causes we must place also the so-called "catching cold," which naturally must be regarded as a *momentary* predisposition to secondary infection. I have seen this illustrated in the case of a schoolboy who, after returning from sliding, suddenly got a violent pain in the throat. In a few hours I found a gelatinous swelling of both arytenoid cartilages as well as ary-epiglottic folds. In this category of thermal causes we place burning with too hot foods or fluids, for instance, potatoes (Heymann and Meyer), tea, etc.

In the case of a military officer, aged twenty-five, I saw a gelatinous swelling of uvula, as well as epiglottis and posterior part of the larynx, resulting from a burn with very hot tea.

The second group of causes are due to chemical action, as in swallowing acids and alkalis for suicidal purposes. I observed a case of this kind in an unmarried lady (aged thirty), who drank strong ammonia by mistake. The whole oral cavity and tongue, soft palate, together with the uvula and the posterior wall of the

larynx and the posterior segments of the vocal cords were covered with white membrane and greatly swollen. Heymann and Meyer report a rare case of laryngeal œdema resulting from chlorine vapours (in the factory, and one of the actions of osmic acid during microscopical investigations).

In the same category of the chemical causes some authors (Gerber, etc.) place also laryngeal œdema occurring after internal application of potassium iodide, although Heymann and Meyer regard this as a simple transudation and not as an inflammatory exudate, with which, however, I do not agree.

I, also, like Avellis, Rosenberg, Gerber and others, observed some cases of this kind—a typical one in a girl, aged twenty-five, in whom, after the application of a couple of tablespoons of a dilute solution of potassium (c 4, 0—180, 0 aq. dest.), a considerable swelling of the epiglottis and left ary-epiglottic fold appeared. Her case was probably one of idiosyncrasy to this remedy. Electricity also, in the form of a constant current, is sometimes a cause of inflammatory laryngeal œdema, as the case of Heymann and Meyer proves.

Finally, the third group of causes of primary inflammatory œdema of the larynx are mechanical, namely, trauma (foreign bodies, blows, endo-laryngeal operations. A case occurred in a man, aged seventy. After eating a fish a bone stuck in his throat and great gelatinous swelling of the right ary-epiglottic fold as well as right ary-tænoid cartilage immediately appeared and ended in suppuration.

A man, aged thirty-five, on the second day after swallowing the bone of a chicken suffered from great swelling of the left ary-tænoid cartilage. This ended in the formation of an abscess, which, like in a preceding case, had to be opened by me artificially.

The second group of primary inflammatory laryngeal œdema includes the infectious processes (laryngitis submucosa acuta infectiosa), in which group, as I have already mentioned, we must count Massei's erysipelas laryngis. A typical case of this latter disease among others I observed in an agricultural labourer, aged forty-six, with redness and swelling of epiglottis, ary-epiglottic folds, as well as posterior wall of the larynx, with secondary extension afterwards of the inflammatory process to the throat, nasopharynx, as well as nasal cavities, finally to the face, in the form of a typical erysipelas.

In secondary (symptomatic) inflammatory œdema of the larynx this latter can be affected in consequence of general

infection, or primarily, and also *per continuitatem*. As to the channels by which the infectious agent penetrates to the larynx in general infection, opinions are divided; some (Schroetter, etc.) believe through the lymphatic vessels, others (Ziemssen, etc.) through blood-vessels. This latter, in the case of abdominal typhus, has recently received support (1905, Chevalier Jackson). In general the causes of secondary inflammatory œdema of the larynx are the acute infectious diseases, as morbilli (Citelli), scarlatina, typhus abdominalis, rheumatismus articularum acutus, diphtheritis, erysipelas, variola, endocarditis ulcerosa febris, puerperalis (Arslan), finally, pyæmia and septicæmia; and from chronic infectious diseases—tuberculosis, syphilis, and cancer.

The following cases belonging to this category occurring in my practice may be briefly referred to:

(1) A boy, aged two and a half, with the so-called tonsillitis follicularis (diphtheritis?) as well as secondary affection (œdema) of the subglottic space (laryngitis hypoglottica acuta), simulating croup (no Loeffler's bacilli).

(2) A patient, aged thirty-four, with diphtheria and secondary affection (swelling) of epiglottis, right ary-epiglottic fold, as well as right arytenoid cartilage. This case ended fatally.

(3) A married woman, aged twenty-one, with swelling of the right arytenoid cartilage, preceding by some days' acute articular rheumatism.

Concerning the latter disease I must here remark that in my opinion many cases of primary œdema of the larynx occur as if from catching a cold (*à frigore*) are of rheumatic origin. In this opinion I am strengthened by the course of many cases of acute submucous laryngitis, in which recovery followed the administration of the salicylates.

To this category of secondary œdematous inflammatory processes of the larynx belong also swelling, spreading *per continuitatem* (the so-called œdemata laryngis collateralia fortgeleitete œdeme, Hajek). These cases are very numerous, although, unfortunately, they are overlooked (Heymann and Meyer). Usually it takes place in the course of purulent inflammation of the lingual tonsil (tonsillitis lingualis abscedens). If only one lingual tonsil is affected the infection may remain unilateral, swelling of the epiglottis or ary-epiglottic fold only taking place on the corresponding side. I have observed eighteen cases of this form of inflammatory œdema of the larynx. Gerber considers also the lingual tonsil as the principal means through which infection reaches the surrounding tissue.

Though rarer we sometimes meet with a spreading of the inflammatory process to the larynx in cases of *peritonsillar* abscess (eight cases in my practice), as well as a simple acute angina (four cases). It may take place in cases of suppuration of the thyroid gland (Schroetter), glands of the neck, *columna vertebralis*, and frequently in parotitis epidemica (Heymann and Meyer).

As to the *localisation* of the inflammatory œdema of the larynx, the first place in this regard belongs to the epiglottis, especially its lingual surface (the so-called angina præ-epiglottica anterior, Michael). This is in close keeping with the anatomical structure of this region, which is rich in loose submucous connective tissue, as well as being liable to be injured by foreign bodies (bones, fish-bones, etc.). It has also in its neighbourhood the analogical submucous connective tissue of the lateral parts of the pharynx, as well as of the lingual tonsil, whence, *per continuitatem*, the acute inflammatory or purulent processes easily can extend to the epiglottis. I observed in my practice twenty cases of inflammatory swelling of the epiglottis. It is characteristic that this swelling generally does not pass over the free edge of epiglottis on its laryngeal surface, where the mucous membrane strongly adheres to the cartilage. This was demonstrated by Hajek. In some of my cases this swelling was so considerable that the epiglottis, especially in cases of laryngeal erysipelas, was red, gelatinous, and so swollen as to cover the entrance to the larynx. In some cases also the epiglottic œdema was partial, *i. e.* limited to one half of the larynx, usually the left, and arose in secondary cases of affection of the corresponding half of the lingual tonsil.

In four cases I noted the localisation of the submucous inflammatory œdema in the region of *petiolus epiglottidis*, where, again, there exist the anatomical conditions which are favourable to this kind of œdema.

These œdematous processes also, from the anatomical points of view, find a suitable field in the ary-epiglottic folds, especially in the region of the arytenoid cartilages (fourteen times on the left side, ten on the right); six times on the right side there were also affected the ary-epiglottic fold and arytenoid cartilage; once only were both sides implicated.

Speaking generally the affection of the ary-epiglottic fold alone I observed rarely (two times on the right side), mostly, however, together with the arytenoid cartilages (six times), as well as epiglottis (six times on the right side), more rarely with the posterior wall of the larynx (two cases); finally, twice simultaneously there

were affected arytaenoid cartilages as well as posterior wall of the larynx.

The epiglottis is affected more frequently simultaneously with other parts of the larynx, especially with arytaenoid cartilages (ten cases, of which eight were on the right side); further, with the ary-epiglottic folds (six times), and with the posterior wall of the larynx (two cases).

Sometimes different regions of the larynx are simultaneously affected, as, for instance, epiglottis, ary-epiglottic folds, or arytaenoid cartilages (six times, of which four were on the left side) and epiglottis, posterior wall of the larynx, and the ventricular bands (two cases).

In one word, all combinations are possible. The vocal cords are least frequently affected, especially at their posterior ends, and with simultaneous affection of the posterior part of the larynx (two cases) as well as the subglottic region (two cases).

Of the *symptoms* there appears for the first plan in cases of acute submucous inflammation of the larynx in its œdematous form a more or less pronounced dyspnœa, due especially in cases of greater affection of the ary-epiglottic folds directly to the onset of suffocation (stenosis inspiratoria), indicating the necessity of tracheotomy. In cases of Senator's acute infectious phlegmon of the pharynx the general symptoms predominate (affection of sensorium, weakness of the action of the heart, etc.). Other symptoms are common to both the forms, namely pain in the throat, radiating towards both ears or to the corresponding ear, difficulty of swallowing, the sensation of the foreign body in the throat, cough (in cases of affection of the subglottic space), as well as hoarseness (in cases of the affection of the vocal cords and of the posterior wall of the larynx). In the latter case it is caused by the mechanical obstacle, the vocal cords not being able to approach one another.

Usually the process begins suddenly during complete health, especially in the primary form, with a greater or smaller amount of fever, rising especially in cases of laryngeal erysipelas to 41.8° C. (Massei). In several cases, especially in primary inflammatory œdema of thermal, chemical, or mechanical origin fever is absent. The lymphatic glands of the neck or submaxilla in several cases, especially in secondary inflammatory œdema, as well as in cases of the so-called laryngeal erysipelas, the glands are more or less affected, *i. e.* swollen and painful.

The *course* of the disease is generally acute; inflammatory

œdema mostly passes off quickly (in several days) after suitable treatment. In the case of suppuration, which does not often occur, the abscess opens spontaneously, sometimes during the examination. This happened in four of my cases (abscess of the epiglottis in two cases, abscess of the region of the left arytenoid cartilage in the remaining two cases), or oftener the evacuation of the pus follows artificially by means of bistoury (in twenty-eight cases).

Diagnosis of the acute submucous inflammation of the larynx in its different forms is not generally difficult, thanks to the history and symptoms (dysphagia, dyspnœa) and the acute course of the diseases; chiefly, however, by means of the characteristic laryngoscopic picture (pale, gelatinous, sometimes, for instance, in cases of laryngeal erysipelas, glittering dark red swelling localised on the epiglottis, ary-epiglottic folds, as well as arytenoid cartilages, mostly on one side only). In cases of affection of the subglottic space we see below the vocal cords on both sides oblong folds, generally red and simulating third vocal cords.

These latter processes are sometimes difficult to be distinguished from inflammation of the perichondrium (perichondritis crico-and thyreoidea).

In children, when the examination by means of laryngoscope is not always applicable, the diagnosis of the œdematous processes is more difficult. Palpation can be employed, especially in case of the affection of the epiglottis.

The *prognosis* in most cases of primary laryngeal œdemata is favourable. In 108 cases in my practice I have noticed only two deaths, namely, in case of secondary laryngeal œdema after diphtheria, and in case of acute infectious phlegmon of the pharynx, in which, usually, death takes place on account of septicæmia or paralysis of the heart.

As to the *treatment* of the œdematous inflammatory processes of the larynx, it should be general and local. The first must rely principally upon the prophylaxis, especially in hospitals during any erysipelas epidemic. When the disease is present we give some laxative drugs, as well as salicylic preparations during the febrile stage. These latter, in my opinion, act, in many cases, directly, specially where we have to do with the laryngeal œdemata of rheumatic origin.

General fortifying remedies (roborantia) are also indicated, especially in cases of laryngeal erysipelas or acute infectious phlegmon of the pharynx.

The serum anti-streptococcicum, however, applied recently in

these diseases, are without success, as was proved by Pierce¹ in fifteen cases of laryngeal erysipelas and phlegmon. Lennox Brown advises in such cases the subcutaneous injection of pilocarpine. Locally we apply chiefly, externally and internally, ice, which generally acts excellently in these cases. Fluid and cold foods are indicated in these cases.

In many cases, as I was taught by experience, incision (by means of Schroetter's covered knife, or an ordinary one) of the swollen parts of the larynx, especially of the region of arytaenoid cartilages, ary-epiglottic folds and epiglottis, though not being in a condition of suppuration, diminished very remarkably the symptoms of suffocation, removing, in many cases entirely, the necessity of tracheotomy. Sokolowski and Hajek, however, are of a different opinion, advising immediate tracheotomy. Finally, Gaucher advises in these cases intubation.

Besides the ice-compresses on the neck vesicants and leeches can also be used in these cases with advantage. Bier's method is also applied with success in cases of acute submucous laryngitis or phlegmon of the pharynx and larynx.

Analgesic remedies, like gargles (in cases of the affection of the pharynx and epiglottis) or powders (in cases of the affection of the deeper parts of the larynx), are suitable applications, with bromide of soda (8, 0—360, 0 aq. dest.), with addition of the small quantity (0, 5—1, 0) of cocaine, as well as of the cocaine alone, 1 per cent. to 10 per cent. Adrenalin (1:1000) is also used. I have seen good results from the insufflation of orthoform. All these remedies, as well as methods, having for their aim the prevention of suppuration, are not always successful, and when, by the laryngoscopic examination, a yellow point on the most elevated part of the œdema is seen, we must not delay the methods facilitating the evacuation of the pus, namely, hot compresses (cataplasms) externally, after which sometimes the abscess opens itself; or much oftener it should be artificially opened by means of simple or covered (Schroetter's) laryngeal knife. Finally, sometimes it is necessary to perform tracheotomy (Smith,² Rice³).

¹ *Fraenkel's Festschrift*, 1906, p. 1826.

² "Laryngeal Edema," *N. Y. Med. Rec.*, April, 1906.

³ *N. Y. Med. Journ.*, December, 1898.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF
MEDICINE—LARYNGOLOGICAL SECTION.*December 6, 1907.**J. B. BALL, M.D., President of the Section, in the Chair.*

REPORT OF THE MORBID GROWTHS COMMITTEE.

“MR. ALEXANDER TWEEDIE'S specimen of pulsating growth in the middle turbinal (shown at the meeting of November 1; see p. 1): This is an adenoma, part of which shows active growth and part marked dilatation of the acini. There is a patch of blood-clot on the surface indicating the site of the severe hæmorrhage.”

A CASE OF ATRESIA OF THE NASO-PHARYNX.

BY COUBRO POTTER, M.D.

THE patient, a youth, aged twenty-one, complained of obstructed nasal respiration. The uvula was absent; the fauces and the soft palate presented evidence of old ulceration which had become quiescent. The palate was adherent to the posterior wall of the pharynx, and the communication between the pharynx and the post-nasal space was reduced to an opening no larger than the orifice of an Eustachian tube. The epiglottis was infiltrated and distorted, overhanging the vocal cords and the intrinsic parts of the larynx, which appeared to be normal. There was no dysphagia, no specific history, no evidence of skin lesions, no sputum, and the temperature was normal. Four years ago an enlarged gland was removed from the neck.

The case was exhibited prior to any operative measures being undertaken, not with a view of inviting discussion on the various surgical and mechanical methods in vogue for overcoming atresia in this region, but with a view of eliciting opinions on the pathology of the condition, and also whether surgical interference was in any way contra-indicated.

MR. CRESSWELL BABER asked whether there had been any infectious disease with ulceration in the case, such as scarlet fever; also whether the tuberculin eye-test had been tried.

MR. DE SANTI said he thought it was lupoid. It was possible to still

see some nodules like those of lupus in the palate. He believed the condition of the palate was very unsuitable for operation. If it were operated upon the tissue would give way and there would be no good result.

The PRESIDENT called attention to the fact that the adhesion was not giving the patient any great inconvenience; he could breathe through the nose fairly well.

The SECRETARY (Dr. JOHNSON HORNE) said that in the absence of Dr. Coubro Potter he could not say whether there had been any infectious disease such as scarlet fever in the case. He was not aware that any tuberculin test had been applied. The views expressed by Mr. de Santi, both as to the nature of the condition and also as to the prognosis, should there be surgical intervention, coincided with his own.

A CASE OF "BRIDLE" FORMATION IN THE LARYNX.

By HERBERT TILLEY, F.R.C.S.

THE patient, a man, aged thirty, had suffered from tertiary syphilis, and now showed a curious "bridle" formation in the region of the left ventricular band.

A SPECIMEN OF LEPROSY OF THE LARYNX.

By ARTHUR EVANS, M.S.

THE patient, a man, aged twenty-one, a native of the West Indies, was admitted into the Seamen's Hospital in May, 1906. Ulceration had appeared on the face two and a half years before; this healed within three months, reappeared after ten months and slowly spread. There was never any pain. The patient had never to his knowledge been exposed to infection. On admission there was extensive ulceration on the brow and cheeks, and the nose was almost destroyed. Respiration was noisy and there was marked loss of voice. Old scars were visible on the legs and near the ankle; these were anæsthetic to light touch. The laryngoscope showed the epiglottis to be much smaller than normal, its edges were incurved, and completely hid the interior of the larynx.

The patient died in November, 1906, and the spleen and liver were teeming with leprosy bacilli. The specimen shows very marked contraction of the upper aperture; the epiglottis is much shrunk and folded; the aryteno-epiglottidean fold is so much contracted that the margins of the epiglottis are in contact with the arytenoid cartilages. This is due to contraction of the fibrous tissue, which results from a small cell infiltration in the early stage of the disease. The vocal cords appear to be normal. The

dyspnœa was not so marked as to suggest the advisability of performing tracheotomy, and it appears that this operation is practically never needed in cases of leprosy, although dyspnœa is a common symptom.

A CASE OF CONGESTION OF THE RIGHT VOCAL CORD.

BY HERBERT TILLEY, F.R.C.S.

A man, aged forty-six. Loss of voice for two months, with no history of tuberculosis or syphilis. The larynx showed a granular congestion of the right vocal cord, with slight impairment of movement. There had been no improvement under full doses of iodide of potassium and mercury. The principal question at issue was whether the lesion was of a malignant nature.

Sir FELIX SEMON said he thought it was very difficult to form an opinion about the case. Although he had looked carefully he could not discover any impairment of mobility at all. He would like to warn members not to conclude too quickly that the condition must be either tubercle, or syphilis, or a malignant growth: there was always the possibility of its being an unusual form of chronic laryngitis affecting one vocal cord only. While it was a very good diagnostic sign—and he would be the last to detract from its value—he thought an observer should give a guarded opinion when he saw unilateral congestion of a vocal cord, because it did not always necessarily mean the development of some graver disease. There certainly were some cases of simple chronic inflammation which did not lead to any further trouble, and which affected only one side of the larynx. He believed the present case was one of simple chronic unilateral laryngitis, and not one of new growth.

The PRESIDENT asked how long the case had been under Mr. Tilley's observation.

Mr. HERBERT TILLEY, in reply, said the patient had been under his observation about six weeks, during which time he had seen him twice. He put him on 15 gr. doses of iodide of potassium, with 1 drachm of the perchloride of mercury, and he said he was very much better. But he did not see any difference in the appearance of the larynx or the clearness of the voice. If the patient were very quietly examined it would be seen that below the left cord was a greyish patch and the cord thickened, and this, he believed, was superficial ulceration. He believed that that really was seen by some that day. There was puffy, granular congestion. The man was in good health, not losing weight, very fit, and came of a healthy family. There was no history of venereal disease. He did not know what the condition was due to.

SYMMETRICAL NODULES ON THE CORDS OF A BOY, AGED NINE.

BY HAROLD BARWELL, F.R.C.S.

The boy complained of hoarseness of two months' duration,

which was steadily getting worse. He was in ailing health, but showed no sign of tuberculosis. He did not sing, nor was he in the habit of exerting the voice unduly.

Mr. HERBERT TILLEY said he saw a boy, aged eleven, with the same condition about two months ago. That boy appeared to have had no unusual voice strain, such as singing in a choir, but it was said that he was very noisy in the playground.

Mr. CLAYTON FOX thought the case a very useful one in showing that besides defective voice production and nodal attrition, which were not likely to be causal factors in this particular instance, there was another theory which might fit the present case, viz. non-absorption of the embryonic web between the anterior third of the cords in the anterior commissure. If this were not complete nodes could arise from the remnants.

Sir FELIX SEMON said that while a symmetrical condition of that kind was rare in children, unilateral nodules in the larynx in even smaller children were anything but seldom met with. He had seen a considerable number of children who had been brought to him for advice at an early age on account of huskiness of the voice, from which they had suffered practically since birth, so that it was likely the condition was congenital. He thought the suggestion of the last speaker was very reasonable and likely to be correct. As to treatment, he had always advised, unless there were real need on account of occupation, to leave the nodules alone, at least until the child was older, because in many cases spontaneous and considerable improvement, if not complete cure, resulted at the age of puberty.

A CASE OF GUMMA OF THE LARYNX.

By LAWRENCE JONES, M.S.

(Introduced by Mr. HAROLD BARWELL.)

THE patient, a carman, aged thirty-four, was first seen on October 25, 1907, complaining of a gradually increasing swelling in the neck and loss of voice of fourteen months' duration. History of a sore on the penis in 1897, followed by an abscess in the groin, for which he received fourteen days' treatment. There was in the neck a firm, rounded swelling about the size of a Tangerine orange, adherent to the skin and fixed to the left side of the thyroid cartilage, pushing the larynx over to the right and extending downwards as far as the first ring of the trachea. There was no dyspnoea or stridor, but the voice was very husky. Mr. Barwell, who examined the larynx, reported that there was a large œdematous swelling of the left arytaenoid, extending down to the level of the cricoid; the left ventricular band was pushed inwards by a large rounded swelling and the left arytaenoid was absolutely fixed. He diagnosed syphilitic perichondritis of the thyroid and arytaenoid

cartilages, and probably also of the cricoid. He was given 15 gr. of potassium iodide with 1 drachm of liq. hydrargyri perchloridi three times a day, but by November 5 he was showing symptoms of iodism, and the central part of the swelling was now reddened and fluctuating. He was then admitted, and, on the suggestion of Dr. Wilfrid Fox, he received daily injections of 2.5 to 3.0 c.c. of a 1 per cent. solution of benzoate of mercury, and calcium iodo-ricinoleate was administered by the mouth. Under this treatment the swelling has become much smaller, and is now neither red nor fluctuating, whilst the larynx also shows much improvement.

MR. BARWELL said he had seen the patient both in and out of the hospital, and he was most resistant to mercury and potassium iodide given by the mouth, but reacted with great rapidity when the benzoate of mercury was injected. He had been very susceptible to iodide of potassium, but had taken the complex salt without trouble and with most beneficial results. Previously to this treatment the swelling in the neck was pointing and apparently about to rupture, but it had now almost disappeared.

DR. BRONNER asked whether Mr. Jones had tried the syrup of hyperiodic acid. Those who had used it said it was very good in the cases which did not take the ordinary iodide well. He had himself not seen a case in which it was not taken well.

MR. STUART-LOW said that a short time ago he had a case of this kind, only more extensive, in which, before he saw it, there had been a breaking down, so that a deep-seated abscess had formed. Parke Davis' polyvalent anti-streptococcic serum was used, and the effect was to disperse the induration, resulting in recovery in about a fortnight. Previously, anti-syphilitic treatment had been employed, and this had done good in the interior of the larynx, but an abscess had formed outside, over the laryngeal cartilages and in front of the trachea, and it was this condition that the polyvalent anti-streptococcic serum proved so effective in remedying.

MR. LAWRENCE JONES, in reply, said the substitute for iodide of potassium was given to the present patient, and he tolerated it well. Starting with 3 gr. three times a day he was now taking 6 gr. three times a day. He seems very susceptible to iodide, and with 10 gr. three times a day coryza developed and the usual symptoms of iodism. When the injection treatment was started the lesion was fluctuating over an area the size of half a crown. Within a week of starting that treatment the lesion had puckered up and the fluctuation had disappeared.

BILATERAL SARCOMA OF THE UPPER MAXILLÆ.

(With *Microscopical Section*.)

By ARTHUR HUTCHISON, M.B.

The patient, a boy, aged fifteen, suffered three years ago from nasal obstruction, which, however, seemed to have passed off; in July, 1906, the obstruction returned, accompanied by swelling of

the face, which rapidly increased. When first examined, in November, 1906, he presented symmetrical, hard, painless swelling of both sides of the face, which broadened the alveolar processes, filled the canine fossæ, and pressed downwards the right half of the hard palate. The teeth were somewhat displaced and the permanent canines had erupted in front of the temporary canine teeth. The outer wall of the nose bulged inwards so as to press on the septum on each side, almost completely obstructing the nares. There was a rather profuse muco-purulent nasal discharge, and also epiphora and lachrymation. Ocular movements were normal; vision in the right eye was good, but had always been defective in the left. On transillumination the entire face was dark. The swelling on the right side was explored through the canine fossa and was found to consist entirely of soft bone, the antrum being absent. This bone, on microscopical examination by Dr. F. G. Bushnell, was reported to show spindle-cell osteo-sarcoma. Since November, 1906, there has been very little change in the condition.

Mr. DE SANTI said the microscopical sections were very interesting, and clearly showed a sarcomatous element. On the other hand, the history, symmetry, and appearance of the disease made one regard it as innocent. He doubted whether, clinically, it was sarcoma. He believed the disease to be diffuse osteoma or diffuse osseous growth which occurred, although infrequently, in young people and ran an innocent course. Under present circumstances he thought no operation should be contemplated. A contra-indication for operation in such a case, if sarcomatous, would be displacement of the eye. If the eye were displaced outwards or upwards it indicated that the ethmoidal region was affected or (when displaced inwards) that the spleno-maxillary fossa was invaded. The prognosis in the event of removal of the upper jaw was then very bad.

Dr. JOBSON HORNE agreed with the previous speakers that Mr. Hutchison had brought forward a case of exceptional interest and importance. It had been regarded as sarcoma, and in the present state of knowledge of sarcoma Dr. Horne thought that exception could not be taken to that diagnosis. Sarcoma, as Dr. Horne had pointed out elsewhere, was a term used to cover a multitude of conditions, the exact nature of which was not understood. The history of the present case, the symmetry of the growths, led him to the opinion that the condition was not sarcoma in the sense that it would give rise to metastases and cause the boy's death, but that it would remain local and continue to grow. The case reminded him of a skull preserved in the museum of St. Thomas's Hospital. It presented a pair of symmetrical growths which during life doubtless occasioned a facial appearance resembling, but in a more marked degree, the case that had been exhibited. Dr. Horne believed that the present case had been brought about by some intra-nasal infection, the precise nature of which it might be difficult to ascertain, but the results of intra-nasal infection still afforded a field for research. He

was in favour of leaving the present condition alone, though he believed the patient would grow up to be very ugly.

Dr. L. H. PEGLER asked whether Mr. Hutchison would allow the Morbid Growths Committee to report upon the slide. It was not easy to pass an expert opinion on a slide only seen for a few moments. The cells in this case were those usually associated with a spindle-cell sarcoma, and if a different interpretation were adopted it would be necessary to revise half our catalogues and re-label numberless microscopical sections.

Dr. SCANES SPICER said he had had several patients whose antra he had cleared out, the contents of which antra had been condemned by pathologists as sarcoma, but their owners were walking about well ten years afterwards. Therefore he was sure the histological diagnosis in these cases often should be accepted with some caution. As Dr. Horne mentioned, the diagnosis of "sarcoma" was by no means an explanation of the process giving rise to it. From the clinical look of this case he did not believe it was "sarcoma" in the ordinary sense, *i.e.* capacity of giving rise to metastatic growths of the same structure.

Dr. WESTMACOTT endorsed the remarks of Dr. Scanes Spicer concerning the pathological examination of tissue removed from the upper jaw. Early this year he suggested to Dr. Smurthwaite the drawing up of a list of cases. He had recently experienced three different cases in which malignancy was described in tissue removed from the jaw, but in each case it was proved to be innocent. He regarded the present case as allied to leontiasis, not sarcoma in any form. Against the latter was the history, its appearance, the absolute symmetry, the absence of crepitus. Moreover, the teeth were all present on both sides, therefore there seemed to be no irritating cause.

Dr. FITZGERALD POWELL agreed that there seemed to be clinically no sign of sarcoma, and he believed it was probably leontiasis osseum. With regard to treatment he thought the cause was probably either tubercle or specific disease in the first place. He would advise the administration of iodides.

Dr. H. SMURTHWAITE said that about two years ago he had a similar case, on one side only. The whole front of the maxilla was pushed forward, but there was no protrusion of the eye. The hard palate was forced into the mouth. He could not see any growth in the nose, but the inferior turbinal was pressing tightly on the septum. A general surgeon saw the case with him, and although that gentleman would not say it was sarcoma, it was decided to put the patient under chloroform and open the antrum. He removed the anterior portion of the inferior turbinal and came upon a large, smooth, dry cavity. The child was aged five. The maxilla was very much thickened, and now, two years later, the child was still alive. He believed the present case was one of leontiasis ossium.

Mr. A. L. WHITEHEAD said that one case of the kind he saw had symmetrical growths in the upper and lower jaw, and in another case he had had the condition under continual observation eleven years. The present appearance was identical with that of the patient shown, though she had a larger face and head. Still, the growths had only increased in proportion to the face. In regard to the value of the pathologist's report in cases of sarcoma, he thought the pathologist deserved commiseration, because if a section were supplied him consisting of spindle-cells of that character he had no alternative but to describe it as sarcoma, even though, clinically, it was not sarcoma.

Mr. HUTCHISON, in reply, agreed to refer the case to the Morbid Growths Committee, and thanked members for their suggestions as to treatment. His diagnosis of sarcoma was entirely founded on the pathologist's report. That gentleman said it was typical spindle-celled sarcoma, and therefore Mr. Hutchison felt bound to call it so.

A CASE OF LARYNGEAL ULCERATION.

BY P. WATSON WILLIAMS, M.D.

Male, aged twenty-four; gardener by occupation. The voice began to get husky three years ago, gradually becoming worse, and it is now quite hoarse. There is no pain, but recently some slight soreness in the laryngeal region. He has been married for three years and has three very healthy children. There is no expectoration nor any sign of pulmonary disease. The left vocal cord is practically immovable; it is covered in its entirety by the swollen ventricular band, along the free margin of which is a fairly circumscribed fringe with a circular shallow ulcer. There is some fulness externally on the left side, at a site corresponding with the cricoid cartilage. The movements of the right cord are unimpaired.

Sir FELIX SEMON said it was excessively difficult to form an opinion on the case. There was complete immobility of the whole of the left half of the larynx, so complete that if there were not at the same time swelling, one would believe that there was paralysis of that side. But on account of the youth of the patient, the ulceration and the swelling, one was driven to the belief that in all probability there was some mechanical impairment present.

Mr. BARWELL said that after Sir Felix Semon's remarks he would not venture to give a definite opinion, but the appearance certainly made one think of tuberculosis. It had occurred to him that the patient might have pressure on the recurrent laryngeal nerve from tuberculosis of the glands about the bronchi and a tuberculous ulcer in his larynx. That would explain the peculiar appearance of this case.

Dr. SMURTHWAITE asked whether Dr. Williams would show the case a year hence. He was constantly having such cases before him, and was anxious to know the later results. Much was to be learnt from such cases being brought up again. An opinion might be formed which might turn out to be wrong in a few months' time.

Dr. WATSON WILLIAMS, in reply, said he only saw the case for the first time fifteen days ago, and had seen it once since nearly a week ago. The man had been on 20 gr. of iodide of potassium for three weeks. He was sent by Dr. Taylor, of Chippenham. He hoped to be able to bring him up again in some months' time. He regretted no one had thrown any further light on the case. Some features made him think it might be tuberculous, but others seemed to negative that.

A PATIENT IN WHOM A SMALL FIBROMA HAD BEEN REMOVED FROM
THE LEFT VOCAL CORD.

(With *Microscopical Specimen*.)

BY CYRIL HORSFORD, F.R.C.S.

The patient, a female, aged thirty-eight, was an amateur vocalist. She had had complete loss of singing voice and increasing huskiness for eighteen months. The fibroma was removed from the middle of the upper surface of the left vocal cord on October 11, 1907. The voice is now good, both on singing and speaking.

A (?) NEW INSTRUMENT DEvised TO FACILITATE INTRA-LARYNGEAL
OPERATIONS.

BY CYRIL HORSFORD, F.R.C.S.

The instrument, which was employed in the case described above, consisted of a specially constructed needle-holder, designed to pass a curved needle through the epiglottis and so to lift up the organ by means of a suture.

Mr. STUART-LOW said he saw the fibroma removed, and felt sure that the instrument shown facilitated the removal very much. He could not get a view of the fibroma, though he tried repeatedly, but after the instrument was used and the ligature had been passed it was easily visible. The removal was carried out with great skill, ease, and with no discomfort to the patient, and he believed the method was a distinct advance and would prove a great help to the surgeon.

Mr. DE SANTI thought there must be very few cases in which it was necessary to use such an instrument. The patient would have to be educated up to it before it could be easily used. He regarded it as somewhat unnecessary.

Dr. STCLAIRE THOMSON said the instrument was ingenious and might be useful in some cases. It seemed to approximate the edges of the epiglottis towards one another, but Mr. Horsford said that the epiglottis was incurved, and that was why he passed a suture through it. The epiglottis was remarkably tolerant of interference, as was found in treating it for tuberculosis. Those who were brought up on the use of the Mackenzie forceps knew that, even in the case of fibromata which were very anterior, once the Mackenzie forceps were got over the edge of the epiglottis the latter could be pulled forward so that the growth could be seen better when operating. But the present method was evidently painless, and might be useful in rare cases, where the anterior commissure required to be dealt with.

Sir FELIX SEMON said that Mr. Horsford justly put an interrogation mark with the word "new." The method was really more than thirty years old. He had seen a similar instrument illustrated, and, if possible, next time he would bring the illustration.

Mr. WAGGETT thought that the Section owed Mr. Horsford credit for the instrument, but it should not be forgotten that the instrument of Escat did the same thing without disturbance of the patient.

Mr. HORSFORD, in reply, said he first tried the method one year and a half ago on a case in which it was absolutely necessary to get a complete view of the interior of the larynx. He was excising a fibrous web, and as he was using a sharp Heryng's knife it was necessary to see what he was doing. In the present case he agreed with Dr. Thomson that the shank of the Mackenzie forceps, when removing the fibroma, might be used for holding the epiglottis forward, but the growth was so difficult to see before attempting removal that he felt it necessary to do something to obtain a better view. Having done so he felt he could dodge the light by putting the shank of the instrument in other positions than against the epiglottis so as to see clearly the point of the instrument and do the operation without damaging the vocal cords. That was very important as the patient was a singer. He recommended the method because it was neither difficult nor painful. The patient had to be prepared in the ordinary way with cocaine, and much of the success depended on the efficient preparation, both local and general. The method was new as far as he was concerned, and he put the query mark because the idea was so obvious that it had possibly been thought of by others.

BILATERAL FRONTAL SINUSITIS AFTER OPERATION.

By CHICHELE NOURSE, F.R.C.S.

The patient, a woman, aged twenty-seven, was first seen thirteen months ago complaining of frontal headaches, nasal obstruction and purulent discharge, which had existed for several years. Both nares were full of polypi, which were removed. Both antra were punctured and washed out through the nose, and were found to contain foetid pus. Both frontal sinuses were explored by a cannula passed up the infundibulum; much pus was found in the right sinus and a smaller quantity in the left. This treatment was repeated each week for three or four times, after which the pus from the antra was no longer offensive, but the discharge from the frontal sinuses was undiminished. Both sinuses were operated on by the Ogston-Luc method on October 24; both sinuses were very large and the septum between them had almost disappeared. The wound was completely closed and healed by first intention. The right antrum was again punctured six days later. The patient is now well.

Mr. BARWELL asked why Mr. Nourse had made the scar across the bridge of the nose, and whether that was essential for getting at the sinuses. He suggested that it might have been done on both sides by two separate incisions along the eyebrows.

Dr. SCANES SPICER said he had been struck by the good result in this case, especially the free space between the septum and outer wall of the

nose. He had himself sometimes found difficulty in getting that, and thought the secret of success in frontal sinus operations depended largely on good clearance of the anterior ethmoidal cells and the front half of the middle turbinal.

Mr. NOURSE, in reply, said he preferred to carry the incision completely across, so as to get at both sinuses with ease and with the shortest possible incision. The septum between the two sinuses had almost entirely disappeared, so that the sinuses formed one cavity.

TWO CASES FROM WHICH A BLEEDING POLYPUS OF THE SEPTUM HAD BEEN REMOVED.

(With Microscopical Specimens.)

By C. A. PARKER, F.R.C.S., AND L. H. PEGLER, M.D.

CASE 1. Female, aged thirty-three. There was a perforation in the cartilaginous septum, evidently the result of rhinitis sicca or a perforating ulcer, and the growth sprang from the upper margin of the perforation by a small attachment. It was about the size of a small cherry and protruded into both nostrils, causing partial nasal obstruction. The patient had suffered from obstruction and occasional epistaxis for about fourteen years. Examination now showed dryness of the mucosa with a crust adhering to the supero-posterior margin of the perforation, covering the site of attachment of the growth. There is no sign of recurrence eight months after removal.

The microscopical section shows:

(A) *Covering or envelope*.—Fibrinous exudate and blood-clot replacing columnar ciliated, transitional and squamous epithelium, the latter dwindling away in parts to a one-celled layer.

(B) *Beneath the envelope*.—A submarginal granulomatous zone with fibroblasts, leucocytes and lymphocytes.

(C) *Body of the growth*.—(1) Vessels and blood-spaces, many of a large size. (2) Cellulo-vascular masses, sometimes forming a mesh-work, distributed in a looser connective-tissue stroma. The constituent endothelioid cells tends to aggregate around the vessels.

The transverse section is seen to be roughly mapped out in this way, and some of the masses come close under the margin.

CASE 2. The growth—about the size and shape of a bean—was growing from the right side of septum in Kiesselbach's area, and although lying flat against the septum, the actual attachment was not more than one sixth of an inch in diameter. The patient had had very severe attacks of epistaxis for six weeks, and was ill

and exhausted. Ten years previously she had been treated for dry rhinitis and a threatened perforation of the septum. For the last two years she has again blown crusts from her nose. Examination at the present time, two months since removal, shows that a recurrence is taking place.

The microscopical section shows :

(A) *Covering or envelope*.—Epithelium almost entirely denuded and replaced in part by fibrinous exudate, suspending leucocytes.

(B) *Beneath the envelope*.—A submarginal granulomatous zone, in which are many spaces crowded with lymphocytes.

(C) *Body of the growth*.—(1) Numberless vessels and blood-spaces of all sizes and shapes, but mostly moderate in dimensions. (2) The intervening substance is chiefly a fibro-angiomaticous mesh-work of cells and small vessels or capillaries, sometimes submarginal, with a few areas of looser and less cellular tissue. In this case the endothelioid cells approach a maturer and more stellate form than in Case 1, and lymphocytes are everywhere dotted about.

Note.—From the clinical point of view both these cases support the position taken up by Liebermann, Ribary, Krieg, and others, namely, that bleeding polypus of the septum is intimately connected with rhinitis sicca and bleeding vessels in Kiesselbach's area.

Dr. PEGLER said that the interest of these two cases rested on the fact that in each one there was distinct evidence of rhinitis sicca, and in one case the process had gone on to ulceration, destroying the triangular cartilage. Of more than twenty cases in which the clinical history and pathology were known to him, these were the first in which any observation had been made of co-existent disease of the mucous membrane of the nose. In the recrudescence now taking place in one of them, he advised Mr. Parker, in operating, to take away the septal cartilage at the base; no harm could result, there need be no perforation, and one might gain a true idea of the basal tissues. The pathological reports which he had made were in Mr. Parker's hands.

Dr. STCLAIR THOMSON asked what was the microscopic report of the case which recurred. A study of the cases shown by members indicated that recurrence need not necessarily alarm the clinician, because in the first case of the kind he had shown, eight or nine years ago, very free recurrence occurred, and many members then advised removal of the whole septum, first, because it was suggestive of sarcoma, and secondly, because of the rapid recurrence and the fungating appearance. His own case which recurred was found to be an innocent angioma of the septum.

Dr. JOHSON HORNE referred to Dr. Pegler's suggestion that a portion of the septum of the nose should be removed with the growth to assist them in ascertaining the nature of the latter, and also to Dr. Pegler's statement that this had been done in a previous case, but that the specimen, unfortunately, had been lost. Dr. Horne inquired whether Dr. Pegler

seriously suggested the removal of a portion of the septum merely to satisfy histological curiosity.

Dr. PEGLER rejoined that he had suggested no destruction of the septum, only that instead of snaring through the pedicle it was better to remove the portion of cartilaginous tissue from which the growth arose. In that way recrudescence was prevented. He did not call it "recurrence" because that was a term only applicable to the results of the infiltration of malignant disease. One must either cauterise a hole in the cartilage or remove the piece with a suitable knife, as do many of our foreign confrères, the latter method being the more surgical and absolutely curative.

Dr. JOBSON HORNE thought that the tendency of the discussion had been to make a mountain out of a molehill in regard to bleeding polypus of the septum. Some ten years or more ago he brought forward one of the first, if not the very first, of such cases which were recorded in the *Proceedings of the Laryngological Society of London*.¹ Since then he had seen many such cases and had come to regard them as quite innocent, easily cured, and of little or no importance. To remove a portion of the nasal septum because a little piece of embryonic tissue which sprang from it occasionally gave rise to bleeding, which could be entirely stopped in other ways, seemed to be a too surgical procedure. He thought that such treatment was out of all proportion to the innocence of the pimple.

Mr. CLAYTON FOX asked whether it had occurred to Dr. Pegler that Jacobson's organ came into the matter at all. That organ in the adult was represented by a *cul-de-sac*, which was capable of receiving microbes, and the inflammation and the granulation tissue might possibly produce such tumours. Potiquet states that a favourite area for growths and perforations corresponds to the position of the vestige of Jacobson's organ in the septum.

Dr. PEGLER, in reply, said there was no embryological significance to be attached to it, and it was associated with the distribution of Kissenbach's artery and had nothing to do with Jacobson's organ, which was situated further back and at a lower level.

The PRESIDENT, in regard to the association with rhinitis sicca, said that in Case 2 there was some rhinitis sicca on both sides of the septum, but the dry crusting which was seen on the same side as the growth was situated much further back than the growth. The growth seemed quite independent of the rhinitis sicca.

Mr. PARKER, in reply, said he showed the cases from an ætiological point of view, and not to exaggerate their seriousness. Dr. Horne referred to a pimple, but in Case 2 the growth was the size of a big filbert nut, flat on one surface, convex on the other. He proposed to remove the growth again and apply either the cautery or pure nitrate of silver to the point of attachment.

A PATIENT IN WHOM AN EDEMATOUS FIBROMA HAD BEEN REMOVED FROM THE LEFT VOCAL CORD.

SHOWN BY L. H. PEGLER, M.D.

This patient, a female, was exhibited at the meeting of the

¹ *Proc. Laryngol. Soc. Lond.*, vol. iv, p. 31, December 9, 1896.

Section in November, 1907 (see p. 8), and was now brought up again to show the condition after removal of the growth.

Dr. PEGLER remarked upon the condition of the left vocal cord. If the growth had been entirely superficial to the surface of the cord, as in Dr. Watson Williams' case, why was not the cord as white and flat as that on the right side? It was obvious that, although rapidly recovering itself, it had all the appearance of a cord that had recently been the seat of an operation such as had been performed.

CASE OF EPITHELIOMA OF THE LEFT TONSIL, FAUCIAL PILLAR AND UVULA.

BY DUNDAS GRANT, M.D.

The patient, a man, aged fifty-two, had been conscious of gradually increasing discomfort in his throat for ten months, but no definite pain. On examination there was found to be a large area of ulceration occupying the whole of the left tonsil and adjacent portion of the anterior pillar, and extending superficially over the left half of the soft palate and the anterior surface of the uvula. The edges were scarcely everted, and the induration to touch was somewhat less than is usual in case of epithelioma. A microscopical examination revealed typical epitheliomatous structure, although previous examinations were reported to have been negative. Recently a hard gland had developed high up under the sterno-mastoid, and close to the mastoid process. The question arose as to the operability of the case.

Mr. NOURSE said that Dr. Grant had been obliged to leave, but wished for opinions as to the operability of the first case, that of epithelioma of the tonsil.

Mr. BARWELL said the glands were affected on both sides of the neck, apparently very deeply. He thought the primary disease was quite operable, but he doubted if the surgeon would be able to deal thoroughly with all the glands which were secondarily involved.

CASE OF CHRONIC SUPPURATION OF THE MAXILLARY ANTRUM TREATED BY OPERATION THROUGH THE INFERIOR MEATUS.

BY DUNDAS GRANT, M.D.

The patient was a female, aged twenty, suffering from chronic suppuration of the maxillary antrum with pain in the frontal region, causing a suspicion that there might be frontal sinus disease. Opening through the canine fossa was contra-indicated on account of the excellent state of preservation of the teeth. The anterior

part of the middle turbinal was removed, and the frontal sinus washed out with negative result. The antrum was treated by operation through the inferior meatus by perforation with a conical burr and subsequent enlargement of the opening by means of Onodi's punch forceps, a portion of the inferior turbinal having been previously removed. The patient has been able to wash out the antrum through the artificial opening, and has for a considerable time been free from purulent discharge or pain.

MR. HERBERT TILLEY thought it would be well if the patient could be shown again six months hence, after she had possibly caught one or two colds. His experience of a few such cases was that they did very well for six weeks to two months, then got a cold, and that portion of the inferior turbinal which was left over the naso-antral opening impeded free drainage and induced a catarrhal condition of the antrum, which was practically as bad as the original trouble. Three months ago he had an experience of this kind, in a case which had been operated on two years ago in Germany by the intra-nasal method. The cure was hampered by the inferior tubinal which remained, although it was quite easy to pass a probe into the antrum. The inner wall had been removed. The patient suffered from excessive muco-purulent discharge which was only cured by removing the anterior half of the inferior turbinal, so that the antral cavity was in free communication with the nasal cavity.

DR. WATSON WILLIAMS said most of the members must have considered the question as to whether it was better to enter the antrum through the nose or through the canine fossa. The nasal route operation reminded him of the horse with two faults: first it was difficult to catch, secondly, it was not much good when it was caught. The greatest advantage of operating from the outside, to put it briefly, was that the surgeon could look before leaping. It enabled the operator, by direct examination, to determine how far the antral mucosa was diseased, whether it was necessary to remove it by curetting, or whether the region of the unciform process was so diseased as to demand removal, etc. But in going through the nose one could not possibly get a proper inspection of every part of the antrum; thus, unless more than sometimes was really necessary was removed, one ran the risk of leaving pathogenic areas which would subsequently cause trouble, and perhaps necessitate a further operation in a large proportion of cases.

MR. PARKER said that he had performed this operation for the last two or three years, and since taking to it he had not once done the operation through the canine fossa. He believed it to be absolutely successful and much simpler than the canine operation. Success depended on making a big opening through the inferior meatus into the antrum and in removing as much of the bone as possible. Through such an opening it was generally possible to introduce the little finger and determine the condition of the antral walls. When healing was complete the opening would be found to have contracted to half the original size, but this was sufficient for the purposes of drainage and irrigation, and it was generally possible to teach the patient to wash the antrum out for himself. In every case the anterior end of the inferior turbinal should be removed, otherwise there were difficulties in the patient washing out the antrum. Suppuration usually ceased in from ten days to a fortnight, and there

was no trouble from resulting catarrh in his experience. He believed that nearly all cases of antral suppuration could be cured by this simple operation.

Dr. WESTMACOTT said he did not see how one could decide on general principles what operation was suitable for the whole mass of antral suppuration: each case should be treated according to the anatomical condition found. To remove the internal wall from the inferior meatus, where there was a considerable depth below the floor of the nose, was courting disaster by not providing efficient drainage. In an edentulous jaw in an old person, in whom the floor of the nose was on a level with the floor of the antrum, the inferior meatus was the most favourable situation to operate through. The inferior turbinal should be removed through the whole of its extent. The internal wall of the antrum and the anterior part of it being more bony than the posterior half of the antral wall in that situation, it was not only easier but better to have the opening the whole length and pack it from there. If there were a fairly deep alveolus in normal cases the floor of the antrum was below that level, and if the teeth were present the best course was to remove the tooth and go up through the socket of it and make a reasonably large opening into the antrum. Then one should put on a plate of vulcanite, either clipped on to the next tooth or in some other way, and remove it each time for washing through. For the more radical operations one had the option of going through the outer wall of the alveolus, and an opening could be made into the canine fossa for inspection or for clearing out the antrum.

Dr. STCLAIR THOMSON said the question wanted reopening, and thought there should be a formal debate on it. There had been a boom recently in the antral operation entirely through the nose. He had not tried it, and was not yet converted to it. He had opened the maxillary sinus which had been operated upon by that method and reported cured. The case had a magnificent opening from the antrum into the nose so that one could pass one's little finger in. But the nose had a quantity of loose pus in it, and all the lining was polypoid. Another advantage of opening up from the canine fossa was the excellent opportunity it gave for exploring and treating the ethmoid. When he did the operation he also opened the middle meatus and removed a large quantity of the ethmoid, which nearly always in these cases called for treatment. It would be a great advantage if some such cases could be shown, the patients being asked to refrain from washing the nose out forty-eight hours before coming.

The PRESIDENT said he agreed that the question required reopening. He still adhered to the Caldwell-Lue operation. He had known many operations suggested for curing antral suppuration during the last twenty years, and each of them had in due course gone out of fashion. He was satisfied with the canine fossa opening, as it alone gave the opportunity of inspecting and exploring as well as treating the antrum, and it was not a severe operation. A few days ago he had a case which had been operated upon a year previously at another hospital by the new method. The nasal opening into the antrum, though large, was somewhat covered by the inferior turbinal. He did not think enough of the turbinal had been removed. The patient's statement was that she was better for a time, but at intervals of every month or two she had a purulent discharge. He opened through the canine fossa, and found an unhealthy condition of the mucous membrane in the antrum, and he also came across a thin plate of necrosed bone, which he thought had

been pushed in from the nasal wall at the previous operation and had remained in the cavity. He made a larger opening into the nose, and he thought the patient would remain well.

Third Ordinary Meeting, January 3, 1908.

J. B. BALL, M.D., *President, in the Chair.*

Abstract of Proceedings, by DR. DAN MCKENZIE.

The following gentlemen were elected members of the Section :

JOHN SMITH FRASER, M.B., Ch.B.Edin., F.R.C.S.Edin.
(Edinburgh).

THOMAS GUTHRIE, M.A., M.B., B.C.Cantab., F.R.C.S.Eng.
(Liverpool).

CHARLES MON STEWART, M.D.Toronto, M.R.C.S.Eng.,
L.R.C.P.Lond. (London).

The following members showed cases or specimens.

A CASE OF BLEEDING POLYPUS OF THE NOSE.

By W. H. KELSON.

The patient is a woman, aged twenty. There has been bleeding from the right side of the nose for four months, and she has noticed a swelling just inside the nostril for three months.

The polypus is attached to the floor of the nose just below the anterior extremity of the right inferior turbinate body. It is a virgin growth.

Dr. KELSON, in reply to the President, said that he proposed removing the tumour. He showed a case similar to this some years ago, and Dr. StClair Thomson showed two cases of bleeding polypus in 1904. The speaker regretted Dr. StClair Thomson's absence, for the latter had expressed the view that such tumours always arose from the septum, and had differed from the speaker on the matter. Dr. Kelson had hoped that this case would have induced Dr. StClair Thomson to alter his views.

A CASE OF DISEASE OF THE EPIGLOTTIS.

By JOHNSON HORNE, M.D.

The patient, a man aged forty-three, has experienced dysphagia since about the middle of November last ; at the end of that month it became worse: the voice has not been affected. When the patient was first seen the right half of the epiglottis was injected

and thickened along the free border. The other parts of the larynx appeared normal, and the cords moved well. Lues is denied. The patient has been taking iodide of potassium and mercury with benefit.

Mr. CRESSWELL BABER expressed the opinion that the ulcer was malignant.

Mr. HAROLD BARWELL said there was some ulceration of the pharyngeal wall, evidently an extrusion. He could feel an enlarged gland deep in the neck, and was distinctly of opinion that the ulcer was malignant.

Sir FELIX SEMON advised the removal of a piece of the growth for microscopic examination. He urged that operation for the removal of the disease should be thorough, and should include the cervical glands on both sides of the neck.

Mr. WAGGETT thought that in this country operative measures for the removal of malignant disease were too timidly carried out. Excellent results had been obtained abroad (in Prof. Gluck's Clinique) by bold and extensive operation.

Mr. HILL also advised extensive removal. He thought this rule applicable to all cases of laryngeal carcinoma, for in all cases of hemilaryngectomy he had seen recurrence had followed.

A CASE OF FIBROUS AND ECCENTRIC CONSTRICTION OF THE TRACHEA
ABOUT THE LEVEL OF THE FIFTH OR SIXTH RING IN A MALE
PATIENT, PROBABLY SYPHILITIC IN ORIGIN.

BY HERBERT TILLEY.

(The case has been previously shown).

In reply to questions Mr. HERBERT TILLEY said that this case, which he had shown before, was in almost the identical state now that it was three years ago, although the patient himself expresses himself as better. When first under his care in the Golden Square Hospital there were no signs of laryngeal disorder, but the patient suffered from considerable dyspnoea on exertion. Mercurial inunction and the administration of potassium iodide had relieved his breathing very markedly. The constriction could only be seen when the patient was standing and the examiner sitting—the proper position for investigation of the trachea, not so frequently adopted as it ought to be, perhaps.

A CASE SHOWING THE RESULT OF A MODIFIED KILLIAN OPERATION
FOR CHRONIC EMPYEMA OF THE FRONTAL SINUS.

BY HERBERT TILLEY.

The wound was immediately sutured.

Mr. STUART LOW asked wherein the *modification* consisted. For he had observed that the ascending process of the superior maxilla seemed to be in position, as if it had not been removed at all. He had been struck by the excellent æsthetic result as the scar was hardly noticeable.

The patient complained of much pain over the distribution of the supra-orbital nerve, and this, the speaker supposed, was due to the supra-orbital nerve having been left or merely severed. Killian, in order to avoid the neuralgia which followed a simple division of the nerve in this operation, made it a rule to excise an inch of the trunk, and the speaker advised that this should always be done.

MR. HAROLD BARWELL thought that immediate suture marked a distinct advance, and was of opinion that it could be practised with perfect safety if the hole into the nose was large enough. He asked Mr. Tilley if he advised immediate closure for all cases.

MR. H. TILLEY, in reply, admitted that "modification" was perhaps hardly the correct description to apply to the operation he had performed in this case. It was an *incomplete* rather than a *modified* Killian, for he had not removed the floor of the sinus. In reply to Mr. Stuart-Low he assured him that a large opening had been made in the ascending process, but the periosteum had been replaced, and, as the operation had taken place two years ago he had no doubt that some bone-formation had partially or completely closed the gap. Regarding the patient's complaint of neuralgia the speaker thought it was exaggerated. He thought he would in future attempt to preserve the nerve. In reply to Mr. Barwell he said that immediate suture was by no means applicable to all cases. Only when the opening made was very free, and when the disease was limited to the frontal sinus, should immediate suture be practised. He had had one case where the skin wound was stitched up at the operation with the result that osteomyelitis and death followed.

PREPARATIONS ILLUSTRATING DISEASES OF THE TRACHEA.

BY JOBSON HORNE, M.D.

(a) A *macroscopic* preparation of a trachea laid open to show a *pedunculated papilloma* springing from the anterior wall near the bifurcation.

A microscopic section of the adjacent lymphatic gland is also exhibited.

(b) A *microscopic* section cut horizontally through the trachea of a child, showing a *sessile papilloma* attached to the anterior wall.

(c) A microscopic preparation of a section cut horizontally through a ring of the trachea of a woman, aged twenty (married, one child, no miscarriage), with immoral associations, who for two years and a half had suffered from a very bad throat. She had extreme dyspnœa, and died suddenly before tracheotomy could be performed.

The glottis was narrowed and the interior of the larynx, which was studded with closely-set papillomatous-like excrescences, presented the appearance of *pachydermia syphilitica diffusa*. This extended down the trachea.

Under the microscope there is no ulceration or loss of substance, but a heaping up of the epithelium, with a metaplasia of the cells from the cylindrical to the squamous variety; immediately beneath the epithelium there is an abundant small round-cell proliferation.

(d) A microscopic section cut horizontally through an entire membranous cast of a child's trachea from a case of *diphtheria*. The section presenting a complete ring, the outer or detached surface is readily distinguished from the inner or superficial layer. In the latter are to be seen clumps of diphtheria bacilli, becoming fewer towards the deeper layers. The specimen illustrates, as is well known, that the membrane is less adherent in the trachea than in the fauces; this is due to the difference of the epithelium lining the two regions. The specimen shows the structure of a diphtheria membrane in this region, and also the distribution of bacilli in it.

Mr. DAVIS asked was the papilloma of the trachea malignant, otherwise why was a section of a neighbouring lymphatic gland included in the specimen shown?

Mr. H. TILLEY asked if the papilloma caused any symptoms, and remarked that it could very easily have been removed by the direct method.

Dr. JOBSON HORNE replied that he had shown the gland to obviate any question being raised of the possible malignancy of the growth. The specimen was met with accidentally in the *post-mortem* room, and presumably had caused no symptoms during life.

CASE OF TUMOUR OF THE NECK.

By JOBSON HORNE, M.D.

The patient was a middle-aged man in whom a tumour had very gradually developed during a considerable number of years. It was situated behind and close to the lower detachment of the right sterno-mastoid muscle, was soft, somewhat lobulated and irregular in outline.

Dr. DAVIS thought the tumour was either a lipoma or a cyst.

Dr. DONELAN felt sure it was cystic.

Mr. CLAYTON FOX had seen the case some time ago and had at first considered it to be a lipoma, but now he believed it was a cyst, formed probably in connection with the third branchial arch.

CASE OF TUMOUR OF THE RIGHT LOBE OF THE THYROID GLAND WITH DYSPHAGIA, COMPLETE RIGHT RECURRENT PARALYSIS AND PARESIS OF LEFT TENSORS.

By JAMES DONELAN, M.D.

The patient, a man, aged fifty, was admitted into the Italian Hos-

pital from the out-patient list on December 5, 1907. He had had increasing dysphagia for five weeks, and complete aphonia, which had occurred somewhat suddenly two weeks later. The site of the right thyroid lobe was occupied by a pear-shaped tumour with the larger end directed backwards. There was slight iritis but syphilis was not admitted. The right vocal cord was immobile and apparently fixed in the cadaveric position; the edge of the left was sinuous. As he had already had iodide of potassium without apparent benefit, Mr. Lenthal Cheatele decided to examine the attachment of the growth with a view to its removal if possible, the view taken being that it was malignant, with an extension between the larynx and trachea. Before anaesthesia was commenced, however, the patient admitted that he had had syphilis. Mercurial inunctions and iodides were then ordered and the operation postponed. The iritis disappeared, the dysphagia diminished, and the voice became stronger. There was still considerable dysphagia and the tumour, though smaller, presented a stony hardness that was not before so apparent. He was put temporarily on the out-patients' list and attended the meeting of the Section on January 3rd.

The PRESIDENT thought a discussion on the possible nature of the goitre might prove of interest.

Dr. DAVIS said the right cord was fixed, and there was chronic laryngitis, and he was of opinion that the laryngeal condition was independent of the thyroid disease.

Sir FELIX SEMON said there was recurrent paralysis, obviously induced by the pressure of the tumour. The paralysis was strictly limited to the right cord. There was, it was true, some chronic laryngitis with pachydermia, but there was no paralysis, even of the tensors of the left cord.

Mr. FITZGERALD POWELL thought the swelling in the neck had no connection with the thyroid.

Sir FELIX SEMON said the lump rose on swallowing.

Dr. DE HAVILLAND HALL agreed as to the paralysis. The patient looked alcoholic, which would account for the chronic laryngeal inflammation.

Dr. DUNDAS GRANT remarked that the thyroid tumour, though it moved to some extent during swallowing, did not move nearly to the normal extent. This, combined with the great dysphagia, was very symptomatic of malignant disease, though possibly some other infiltrating condition might produce it.

Dr. DONELAN, in reply, said that the paralysis in the first instance affected the adductors. The swelling in the neck had caused dysphagia during the last nine weeks, and for six weeks there had been loss of voice. Although the patient had denied infection the exhibitor had diagnosed the swelling as gummatous, and benefit had followed anti-syphilitic treatment. He intended to show the case again.

CASE OF SOFT MALIGNANT GROWTH OF THE TURBINATED BODY.

BY CRESSWELL BABER.

The patient was a woman, aged eighty, who had received a blow on the nose four years previously. On examination there was found an ulcer on the right inferior turbinal; there was dulness on transillumination of the corresponding antrum, and the microscopical report with regard to a portion which was removed by means of a curette was that it was a soft malignant growth, there being no cell nests.

ROYAL SOCIETY OF MEDICINE—OTOLOGICAL SECTION.

December 7, 1907.

DR. PETER MCBRIDE, *President of the Section, in the Chair.*

PRESIDENTIAL ADDRESS.

GENTLEMEN,—I should like in the first place to express my deep sense of the honour you have done me in electing me President of this Section. I can assure you it was as gratifying to me as it was unexpected, and I can only add that during my tenure of office I shall do my best to prove worthy of the confidence you have been kind enough to repose in me. To-day, as we inaugurate the meetings of the Otological Section of the Royal Society of Medicine, we must not forget how much we owe those Societies which were not only its predecessors, but one might almost say its progenitors. I refer, of course, to the Otological Society of the United Kingdom and to the British Laryngological, Rhinological, and Otological Association. Such societies as these, existing as they do in all civilised countries, have had much to do with the marvellous strides which scientific otology has made of late years.

There is no stimulant for thought equal to free discussion, nothing sharpens the logical faculties more, and there are few better incentives towards wide reading. Most of us here have been engaged in the practical work of otology for some years—a few of us have been so engaged for several decades. When I look

back over a period of nearly thirty years and remember the modes and methods of those times, and compare them with those of to-day, the question sometimes shapes itself: "What of the next thirty years?" He would indeed be a rash man who would venture to forecast the paths along which progress will be made, but we may feel tolerably sure that as advances have occurred in the past, so they will take place in the future.

It seems to me that we shall not be far wrong if we assume that progress has followed a great general law. It has resulted from the application to otology of general medical and surgical principles and methods, modified, of course, to suit the peculiarities of the region to be dealt with, but always resting, so far as circumstances have permitted, on a sound basis of anatomy, physiology and pathology—a trilogy which gives the most certain guarantee for rational therapeutics. Having gone so far, it may be interesting to speculate upon the further lines of advance.

Reasoning from the past, we shall feel rather doubtful whether we can expect any great advance in anatomical knowledge, and we may feel tolerably certain that such advance as occurs will be in microscopic rather than naked-eye anatomy. In physiology, on the other hand, there still remains something to be done, and we shall all look forward to further light some day to be thrown on the cochlea and semicircular canals, the functions of the ossicles, and other matters still in dispute. While every intelligent aurist keeps himself abreast of modern anatomical and physiological work, yet his interest tends to centre more in morbid anatomy, including under this term bacteriology and cytology. We all know what valuable additions have been made to our knowledge both in non-suppurative and suppurative forms of ear disease.

In dealing with chronic middle-ear deafness the older aurists—and I include some distinguished authors whose works were widely read even within my own recollection—tended to evolve pictures of disease founded rather upon their own subjective impressions than upon well-ascertained facts. Clinical observation was largely employed in arriving at morbid anatomy. Now, however, all this is changed. Gradually a good deal of laborious work has resulted in records of a certain number of cases accurately observed during life and minutely examined after death. Thus we are approaching a knowledge of chronic deafness due to non-suppurative conditions more in accordance with scientific fact.

In suppurative ear disease we have long known the general pathology of the condition, but, as we are all aware, careful

microscopic work combined with bacteriology and cytology has thrown much new light upon both the ear disease and its complications.

If we turn to the older works we shall find that to a great extent what the authors lacked in knowledge of pathology, and even pathogenesis, they atoned for by accurate clinical observation. Yet even here we have made great advances. Merely to give a few instances, I may call attention to the modern methods of testing hearing with tones of different pitch. The seniors among us will remember how delightfully dogmatic we used to be over the tuning-fork test. Certainly we occasionally received an awkward shock when we found Weber's experiment in conflict with Rinne's, but, like theologians confronted with awkward problems, we still kept our faith in one or other, if not both. Now, however, we should never dream of expressing an opinion founded solely on such tests, but make a point in all doubtful cases of investigating the upper tone limit and the ability to hear sounds of low pitch. It will be remembered that quite a considerable number of cases in which the organ of Corti was examined after death have been recorded, and that the results go to show that in middle-ear deafness the low notes are lost, while in affections of the cochlea the upper tone limit is lowered. Again, in cases in which disease of the vestibular apparatus is suspected we now carefully examine the static sense. It is also in many instances important to watch for the occurrence of nystagmus, and it is even asserted by some that in modifications of this symptom we may have a valuable method of differentiation between cerebellar and labyrinthine disease. While, therefore, there has been much careful observation of symptoms both by older and by new workers, we may confidently expect that in the no distant future much will be added to our knowledge of semeiology and diagnostic methods. To us, as practical aurists, however, anatomy, physiology, pathology, and even clinical observation are merely means to an end—the cure of ear disease. Speaking broadly, we may say that of late years the striking advances in treatment have been made in suppurative disease, while infinitely less success has attended endeavours to relieve the effects of chronic non-suppurative middle-ear affections.

We all know how, from simply opening the antrum, we have passed through various stages until we have arrived at the radical mastoid operation of to-day. Neither need I trace the gradual evolution of surgical methods which enables us now to treat throm-

bosis of the lateral sinus, intra-cranial abscess, and even meningitis. The immense progress we have made in the treatment of middle-ear suppuration is an excellent illustration of the suggestion I ventured to make that progress in our speciality—as, indeed, in all others—depends upon applying to the part general medical and surgical principles.

I have said that the most important therapeutic advances have been made in the treatment of suppurative disease, and this is the case with one exception. I refer to the recognition of nasopharyngeal adenoids as a cause of chronic deafness. While the radical operation and its further developments have saved many lives, it is safe to assert that the adenoid operation has saved infinitely more ears. Here, again, we are acting on well-understood principles, and good results follow. As you are aware, a considerable number of operations have been from time to time recommended which are, if I may say so, more specialised in character. Thus it has been proposed to modify the radical operation by leaving the membrane and ossicles; further, ossiculectomy has been advocated both for suppurative and non-suppurative conditions. I should unduly extend these introductory remarks, and, moreover, I should be guilty of a breach of manners were I from this chair to enter upon controversial questions. I think, however, that even those gentlemen who advocate the methods I have referred to will admit that their application must from the nature of things be very limited. Thus, opening the antrum and leaving the membrane and ossicles presupposes that the tympanic attic and incus are free from disease. Again, removal of the ossicles alone can only be curative in those cases in which after the operation attic and antrum drain freely. While in non-suppurative conditions improvement in hearing may follow the removal of the malleus and incus, if the stapes be mobile—as sometimes occurs after healed suppuration, and occasionally in adhesive processes due to catarrh—it can have no beneficial effect in oto-sclerosis, where the lesion lies in fixation of the stapes and osteo-porosis of the labyrinthine capsule.

Other methods of treatment, midway between the operative and non-operative—such as suction with the double object of drainage and congestion, the application of Bier's congestion method to the ear, but from the nature of things also to the brain, and electrolysis of the Eustachian tube—are some of them still on trial, although, speaking for myself, I cannot think they will have a great future.

As we get further away from surgery we find that progress is less marked. In the employment of drugs we have not made great advances. The application of local anæsthetics and the introduction of pilocarpine for certain cases of labyrinthine deafness seem to me to be of value, but, speaking generally, we are where we were years ago, with this difference, that most of us are more sceptical about drugs, and therefore less inclined to use them without very definite indications.

I have thus sketched in cursory form, and as briefly as possible, some of the salient developments of modern otology in the past, and I must admit that it is difficult to foresee room for advances of anything like such a striking character in the future. It almost looks as if we shall be thrown back upon developing knowledge of details, anatomical and physiological, but above all pathological and clinical. It does not appear to me that we can hope for great new therapeutic triumphs, because analogy leads us to expect them only from an extension of surgery, and it would seem that we have come almost to the possible limits in this direction. History, as a whole, however, contradicts this pessimistic view, and although at present we cannot exactly forecast the amount and direction of the new light which will fall upon our specialty, we may rest assured that sooner or later it will come, and I feel sure that in its coming it will be materially assisted by the workers in this Section.

CASE OF EXTIRPATION OF THE LABYRINTH.

BY SYDNEY SCOTT, M.S.

B. T—, a wardmaid, aged twenty. Bilateral otorrhœa from infancy. Very deaf for three years. First seen June, 1906. In November, 1906, complete tympano-mastoid operation on the left side. January, 1907, complained of the right side. Giddiness and fainting fits. February: First fell down apparently unconscious. March: Complete tympano-mastoid operation, right side. No fistula of the external semicircular canal. Vestibular window and fossula rotunda not explored. After operation tympanic granulations persisted. June: Readmitted with headache, giddiness, vomiting, rigor, pyrexia, furred tongue, anæmia, and loss of flesh. Lencocytosis, 14,000. Mastoid cavity reopened. No extra-dural abscess. Lateral sinus and brain natural. Major symptoms subsided, but vertigo evident during convalescence in July. Co-ordination tests: Subjective sensation, objects moving from the right to the left, horizontally when head erect. Diffuse giddiness when lying

down. Static: Swaying of the body irregularly with eyes closed when standing unaided. Dynamic: Attempting to walk with eyes open sways towards the right without falling. With eyes closed falls to the right unless supported. Jumping tests cannot be carried out owing to instability. Hearing tests: Absolute deafness with complete perosseous loss on the right side. Deaf to conversation and the watch on the left side. Weber to the left, Rinne negative on the left. August: Operation on labyrinth. Tympanum reopened, whole of osseous meatal wall removed, and parotid gland drawn forwards. External arcuate eminence normal. Fenestra ovalis explored with fine probe, and footplate felt. Fossula rotunda explored; probe entered by its own weight into the vestibule. Cochlea and vestibule freely opened with gouge, and found to be represented by granulation tissue. (Histological preparation of contents of cochlea shown.) Cerebro-spinal fluid escaped for twenty-four hours. Slight temporary facial weakness followed. Healing of cavity uninterrupted. Giddiness completely disappeared.

Dr. W. MILLIGAN congratulated Mr. Scott on the excellent results which he had obtained in both cases. He thought one of the lines of progress in the specialty would be the surgery of the labyrinth. He believed a considerable number of cases of labyrinthine suppuration were passed over in practice, and the Section should welcome such an excellent communication as Mr. Scott had now brought forward. He desired to emphasise one phrase in the paper, "osseous meatus removed." He regarded that as a most valuable part of the operation, as it admitted of a better view of the deep portion of the labyrinth. He asked whether Mr. Scott was in the habit of allowing the large cavity left as the result of the operation to fill up entirely with granulation tissue, or whether he had ever attempted to graft the cavity. He also asked whether Mr. Scott operated on such cases by means of a fine burr or chisel.

Mr. SCOTT, in reply, thanked Dr. Milligan for his remarks. In both cases the cavities were allowed to granulate and cicatrise without skin-grafting. Both were operated upon with the gouge, not with the burr. In all the cases on which he had operated he used the long-handled straight gouge, with a diameter of $\frac{1}{2}$ cm. to $\frac{1}{3}$ cm. He thought that if the floor and the anterior wall were removed, and the cochlea were destroyed, as there was no hope for the patient's hearing, there was really no advantage in causing the cavity to become lined with epithelium. It seemed better to allow the cavity to become contracted, as it did after removal of the osseous meatus, sometimes filling up with scar tissue flush into the concha.

MICROSCOPIC SPECIMEN AND DRAWING OF A FOREIGN BODY.

By MACLEOD YEARSLEY, F.R.C.S.

S. B—, aged forty-two, came to hospital on September 4,

1907, giving the following history: One week previously he was lying on the grass in Devonshire when, in rolling over, a head of grass went into his right ear and broke off, causing him great pain. He plucked the grass from his ear, but had experienced much pain and discomfort in the ear since.

On examination the meatus was wide and straight. The right membrana tympani exhibited the following appearance: Anterior and posterior to the handle of the malleus were large white plaques. In the anterior inferior segment was a small, round, dry perforation, with a pinkish edge. Immediately behind this perforation was a small brownish projection, not unlike a small blood-clot, which was hard to the probe. Gas was administered and the foreign body was separated by means of myringotome and removed with the forceps. The ear was packed for twenty-four hours, and the patient recovered without any complication.

The body, which is shown under the microscope, proved to be a small grass seed, the fine curled rootlet of which was growing through the membrane into the middle ear. When first removed the circle formed by this rootlet was intact, but it was unfortunately broken in the mounting.

Mr. C. E. WEST asked what was meant by the words "in the membrana tympani." Did it mean that it was embedded in it, and if so, to what depth? Or was the seed in a perforation, or on the membrana tympani.

Mr. W. H. BOWEN, in reply, said he saw the patient with Mr. Yearsley when he first came. The seed was embedded in the membrana tympani, and was thought to go through to the other side. The perforation was caused by the seed.

NOTES ON THE EFFECT OF TREATMENT IN A CASE OF SUDDEN DEAFNESS OCCURRING WHILST THE PATIENT WAS UNDER TREATMENT FOR TERTIARY SYPHILIS.

BY RICHARD LAKE, F.R.C.S.

A. C.—, aged twenty-seven, potman. Seven months before coming under observation the patient contracted syphilis, and at once attended at the Lock Hospital. Four months after he had been under treatment he began to get slight attacks of vertigo, with a tendency to fall to the left side. One month later, *i. e.* when he had been under treatment five months, he noticed he was getting deaf. In four days the deafness was complete, and there was also tinnitus of a hissing variety, both ears being affected. Two months later, after seven months' anti-specific treatment, he presented himself for treatment at the Royal Ear Hospital.

October 17, 1907: The patient, who was very anemic, complained of deafness and tinnitus of two months' standing, both ears being affected. There was no pain or discharge. On examination both membranes were slightly indrawn and the cone of light was broken on both sides. There was no other pathological condition to be observed. Tests for hearing:

	Right	Left.
Acoumeter	$\frac{1}{2}$ in.	Contact.
Voice	A very loud voice, only heard on contact	A very loud voice, only heard on contact.
Whisper	0	0.
Rinne C.	Positive	Positive.
C. Mastoid	-30 sec.	-30 sec.
30' 16	0	0.
20' 32	0	0.
10' 64	Perception	Perception.
C 128	-40 sec.	-55 sec.
C ¹ 256	Air con- duction.	Very diminished
C ² 512		
C ³ 1024		
C ⁴ 2048		

Treatment.—Mercury and iodides were stopped at once, and the following treatment prescribed: Pil. iodoform, gr. iiij, three times a day, together with an iron mixture.

Progress.—The patient attended the hospital regularly once a week, and from the first showed signs of improvement, and on November 28 presented himself at the hospital, saying he was quite well. There were one or two slight attacks of vertigo during the time he was under treatment.

November 28: Patient is looking much better and has almost lost the anemia which was such a marked feature of the case at his first attendance. Tests for hearing:

	Right.	Left.
Acoumeter	$8\frac{1}{2}$ in.	1 ft.
Voice	Over 16 ft.	Over 16 ft.
Whisper	3 ft.	2 ft. 4 in.
Rinne C.	Positive	Positive.
C. mastoid	-6 sec.	-10 sec.
30' 16	Slightly diminished	Slightly diminished.
20' 32		
10' 64		
C 128		
C ¹ 256	Air con- duction.	Normal
C ² 512		
C ³ 1024		
C ⁴ 2048		

The case was brought forward as one of apparently severe

internal ear disease, the result of syphilis, which had, in a large measure, recovered as a result of treatment, although it was a matter of consideration whether the condition was specific, toxic, or the result of anæmia, or due to all three combined.

MR. CRESSWELL BABER asked whether inflation was practised in the case in order to exclude middle-ear disease. He understood the bone conduction was minus 30, and air conduction minus 40; in one ear, therefore, it seemed that besides the nerve deafness there might be some middle-ear trouble.

DR. DUNDAS GRANT asked what was the duration of the deafness, and how long after the primary syphilis it came on, also whether the diagnosis of primary syphilis was quite certain. It seemed very early for tertiary syphilis.

DR. MILLIGAN said that from the notes read he regarded it as a somewhat late case of secondary syphilis of the auditory nerve in a debilitated subject, the kind of case in which pilocarpine produced good results. He asked whether it had been used.

DR. A. BRONNER said the case opened up a very important subject, namely, whether syphilis often affected the hearing. Common sense would lead one to think it did, but according to experience and the statements in the text-books it did not often do so. It would be a good thing some day to have a discussion on the subject. Cases were constantly occurring in which a man had had syphilis and then he got deaf, and the question arose whether the deafness was due to the syphilis.

DR. ALBERT GRAY did not think there was much doubt that syphilis caused deafness. Everyone knew the hereditary cases which came on with interstitial keratitis. He remembered a case in a man who undoubtedly had acquired syphilis, and was suffering at the time from an ulcer of the leg which only iodide of potassium healed. He had giddiness, deafness, and staggering, and that was the only case in which he had seen labyrinthine deafness of syphilitic nature cured. The deafness following syphilis appeared to be an affection of the auditory nerve, not the labyrinth.

MR. E. B. WAGGETT said he could mention a case of the same kind as Mr. Lake's, in which one ear practically recovered but the other remained deaf. There had been very marked vertigo, throwing the man on to the ground. The deafness of one ear and the vertigo were cured by anti-syphilitic treatment in the course of a few weeks.

MR. A. CHEATLE said cases of deafness due to early syphilis were not uncommon, and he had seen a fair number of cases. It was usually associated with giddiness, vertigo, and profound deafness. It was a pity to class the lesions into secondary and tertiary; he did not think that syphilis admitted of being put into such strict categories. He thought in these cases that there was an effusion into the labyrinth, comparable to that in iritis. If they were seen early, prognosis was good.

DR. URBAN PRITCHARD said that all things were comparative, and it must be admitted that cases of deafness caused by syphilis were comparatively rare. He agreed that there should not be rigid lines laid down dividing syphilitic lesions into secondary and tertiary, and in the cases where there was marked nerve deafness in the later stages much benefit sometimes followed the Aix treatment. He remembered a case in which there was perfect resolution on one side, but not the least effect on the other. Of course it was most important for the patient to get hearing on

one side. On that side it became perfect, although there was a little hyperaesthesia of the nerve afterwards.

MR. A. L. WHITEHEAD said it was interesting to get as many opinions as possible failing a special discussion on the subject. Most were agreed that deafness, associated with congenital syphilis, was not uncommon; and those cases of syphilitic affections of the hearing which had been seen were almost invariably not associated with secondary syphilitic symptoms. The gummatous stage very rarely indeed affected the ear, and he would like to know whether any members had seen a case, excluding those associated with congenital syphilis.

DR. DAX MCKENZIE said that they had also to remember that tabes was a late manifestation of syphilis, and that, therefore, nerve deafness referable to that and similar profound nerve lesions must also be looked upon as due to syphilis.

MR. SYDNEY SCOTT asked if any of those present had had the opportunity of histologically examining the auditory nerve, or the cochlea, or the vestibule in cases such as those under discussion, and if so, what changes had been demonstrated.

THE PRESIDENT (DR. McBRIDE) said that syphilitic deafness was a very interesting subject, and he agreed that it would be well to have a discussion thereon. He was surprised at the view that syphilitic deafness was believed to be so rare. He thought he had seen a good deal of it. Excluding the hereditary specific deafness associated with keratitis in children, there were many cases associated more distinctly with tertiary than with secondary syphilis. He believed the accepted view, advanced by Gruber, was that there was a small-celled infiltration of the labyrinth. There might be various forms of syphilitic deafness. First there was sudden nerve deafness, which he divided into two forms: one in which the cochlea appeared to be alone affected and which was called by Rossa syphilitic cochlitis. Another form was that in which there was not only deafness and tinnitus but also giddiness, seeming to show that both the vestibules and the cochlea were affected. Yet another variety was well illustrated by the following case: A man with a syphilitic history suddenly had a cold bath and turned deaf, without giddiness and with bone conduction retained. He had not seen any such cases of recent years, and therefore had not been able to test them with tones of different pitch. But he had in all seen a fair number of instances. The only cases he remembered in which anything approaching a definite cure resulted were one or two which were submitted to pilocarpine treatment and one which had Aix treatment.

MR. LAKE, in reply, said he thought many of the remarks were not for him to deal with. The middle ear had not been inflated. Seven months elapsed from the primary infection to the patient's coming to hospital: deafness occurred five months after treatment was commenced, and that was five months after the syphilitic infection. He could not verify the latter. The patient had had a considerable quantity of mercury. Pilocarpine had not been used. His wish had been to know what variety of toxic infection those present might consider it to be.

NINE SPECIMENS OF FRACTURE THROUGH THE TEMPORAL BONE.

By ARTHUR CHEATLE, F.R.C.S.

In 1, 2 and 3, a double line of fracture separates the roof of

the Eustachian tube, the middle ear and meatus from the rest of the bone, with tearing of the membrane. In 4 and 5 the fracture is much the same as in 1, 2 and 3, but the outer wall of the antrum is also separated. In 5 the separated portion is broken. In 6 the same injury is present, but the fracture extends into the groove for the lateral sinus. In 7 the roof and posterior superior walls of the meatus and outer wall of the antrum and upper part of the squama are separated in one piece, the fracture extending into the groove for the lateral sinus. The membrane is torn through above and the incus dislocated. In 8 it is much the same as No. 7, but the mastoid process is also separated. The membrane is torn across above and the incus lost. The roof of the antrum is missing. In 9 the fracture separated the outer wall of the Eustachian tube, the entire meatus, the outer wall of the antrum and mastoid process, from the rest of the bone. The carotid canal, the lateral sinus groove and the jugular fossa are broken through. The facial nerve is torn through as it leaves the shelter of the external semicircular canal. Various parts of the two large pieces are broken off. Besides the fracture there is a curious malformation below the oval window. A thin bar of bone separates the window from what looks like a second oval window below leading also to the vestibule. In all the bony labyrinth is intact. The outpouring of the cerebro-spinal fluid which occurs in these cases is most probably due to tearing through of the dura mater of the middle fossa. The facial nerve is only torn across in Specimen 9, although it is exposed where it winds round the anterior extremity of the superior canal and just before entering the middle ear in Specimens 1, 2, 3, 4, 5, 6 and 8. The lateral sinus groove is involved in Specimens 6, 7, 8, and 9. The carotid canal is broken through in Specimen 9. The extreme deafness resulting in these cases is not due to fracture through the labyrinth, but to concussion, perhaps hemorrhage into the labyrinth or tearing through of the auditory nerves.

THE PRESIDENT said that though the specimens did not lend themselves to much discussion he was sure he was voicing the sentiments of everyone in thanking Mr. Cheatle for bringing forward such a valuable collection.

MR. L. B. RAWLING said that in 1904, in the Hunterian Lectures, he dealt with the subject of fractures of the base of the skull, the lectures being based on over 100 cases seen at St. Bartholomew's Hospital, 40 per cent. of which involved the region of the petrous portion of the temporal bone. After working at the subject for some time he concluded that there were only two forms of petrous fracture which were in the least common, firstly that fracture which, as the result of a blow on the side of the head, passed inwards along the tegmen tympani on the roof,

and along the Gasserian fissure on the floor of the middle ear, towards the region of the Eustachian tube, and from thence along the petrosphenoidal suture to the central weak spot in the basis cranii, the sphenoidal sinus. The exact anatomical situation of the fracture was best illustrated by what could be seen on the anterior aspect of the posterior fragment, namely, the posterior two thirds of the middle ear, the Eustachian tube and tensor tympani muscle. The question of facial nerve implication was of very great importance, and, in this class of fracture, the nerve was either just involved in the region of the geniculate ganglion or just escaped. Any facial paralysis was consequently of a temporary nature only, and complete recovery could usually be prognosticated. Amongst Mr. Cheatle's specimens there was no example of the second typical group of petrous fractures, a group best illustrated by an example. A man receives a blow on the left occipital region, the fracture passing across the left cerebellar fossa and striking the foramen magnum immediately posterior to the left condyle, and continued, from the opposite side of the foramen, first to the jugular foramen and then across the right petrous bone, traversing that bone in such a manner as to cut across the line of the facial nerve in the region of the geniculate ganglion. In this group the facial nerve was completely cut across, with resultant immediate and permanent facial palsy, associated with a variable degree of deafness from labyrinthine involvement. He was surprised to see in a recent American journal that a surgeon had denied the assertions which he (Mr. Rawling) had made in this connection. Mr. Sidney Scott, who was acting as Surgical Registrar at St. Bartholomew's Hospital, had, however, confirmed all the points, and Mr. Cheatle's specimens now definitely determined the points which he (Mr. Rawling) had investigated and enunciated in every particular.

Mr. SYDNEY SCOTT said that at one of the meetings of the Otological Society Dr. Milligan reported a case of hæmorrhage from the external auditory meatus, associated with fracture of the base of the skull, in which the bleeding came from the lateral sinus. He (Mr. Scott) mentioned at that time that severe continued hæmorrhage from the ear was more commonly derived from the middle meningeal artery, and not from either the tympanic membrane or the Eustachian tube, or from the lateral sinus. Last year he saw a boy who was admitted to St. Bartholomew's Hospital with the story that he had been sliding down banisters in a large building and fell more than forty feet on to a stone pavement below. From his ear escaped brain tissue. The brain tissue was examined microscopically for proof. The boy got well. Through Mr. Rawling he had heard of four other cases of the kind, two of which had also recovered. He would like to hear whether Mr. Cheatle had found brain exuding from the external auditory canal after fracture in any of his cases.

Dr. MILLIGAN said that the reason he brought his specimens referred to by Mr. Scott before the Society was to elicit an opinion with regard to prognosis. It was remarkable how very rarely there was an effusion of blood into the cochlea in such cases. In the majority of severe fractures the auditory nerve was torn. At the *porus acusticus* there was extensive hæmorrhage into the nerve, and if the patient lived for a short time and then died, the *post-mortem* showed a rapid young-celled infiltration between the fibres of the nerve. That fact was most important, because some of the cases recovered, and it explained why the prognosis was so bad with regard to hearing. Concussion was an inexact term, and it was

difficult to know exactly what it meant. Probably in most of the cases there was some hæmorrhage. On the previous day he saw a case which was referred to him by an insurance company in which the statement was definitely made that facial paralysis had existed after the accident. It was now nine weeks since the accident, and the facial paralysis had entirely cleared off. The patient was quite deaf. He accepted the statement that there had been facial paralysis which had now cleared off, and it corresponded with the remark which Mr. Rawling had made as to the usual recovery of facial paralysis in such cases.

Mr. CHEATLE, in reply, said the Society was fortunate in having Mr. Rawling present to discuss the matter, and his work was well known in connection with fractures at the base of the skull. He did not agree with Dr. Milligan that deafness due to concussion was always the result of a hæmorrhage into the labyrinth. If it was so there would be vertigo; but in many cases of nerve deafness resulting from fracture of the skull there was no vertigo. Concussion was in some cases a nerve lesion.

A CASE OF A DEAF-MUTE, AGED ELEVEN, WHO IS APPARENTLY REGAINING HER HEARING.

BY L. A. LAWRENCE, F.R.C.S.

Was not a strong baby; measles at seven months; went to school at three years. Not deaf, could speak quite plainly. At seven years of age teacher of school wished tonsils and post-nasal growths removed. This was done under gas at a hospital as an out-patient. When the child returned home she was quite deaf and did not speak. Between the ages of nine and eleven she commenced talking again in consequence of having been at school for lip-reading. She now speaks with a marked deaf-mute intonation. For the last year it has been noticed that there is some return of hearing. She can hear a loud voice quite close to the ears; better in the left ear. Can hear all the tuning forks from 3C to C₃, but does not hear C₄. Rinne's test positive for C₃, C₂, C₁, C, and 1C; negative for 3C. Weber's test to left ear. Much loss of bone conduction for C₂, C₃, and C₄. Nothing noticeable about drum membranes. Never had discharge from the ears.

Mr. CHEATLE said the fact that profound deafness came on immediately after the tonsils and adenoids were removed seemed to him to show that the deafness was functional rather than organic, and that fact might account for the recovery now taking place.

Dr. DUNDAS GRANT said his impression was that it was juvenile hysteria, although the present gradual recovery certainly seemed to point to the contrary. He had a case in which absolute deafness took place, and the patient was so absolutely deaf for several years that she acquired the faculty of lip-reading. He was unable to cure her, but she suddenly recovered completely as the result of having to lie in bed for an inter-current illness. The question was whether the present patient should be kept at a school for lip-reading. It would be a great pity if she were not

placed among normal-speaking children, so that by imitation she might acquire the natural mode of speech.

Mr. LAWRENCE, in reply, said that all he could judge from as to the previous condition of the hearing was from what he had been told. The deafness was evidently very profound, and from the character of the voice he thought the patient must have been almost, if not quite, a deaf-mute. He had a feeling that she was hearing more than a person in her condition might have been expected to hear.

STENOSIS OF RIGHT AUDITORY MEATUS.

By W. H. KELSON, M.D.

Patient, a girl, aged seventeen. Right auditory meatus represented by a sinus, into which a probe can be passed about 1 in., and which discharges a honey-like fluid. Mother states that the ear was severely injured at birth, and has discharged ever since.

Hearing (right side):

Voice :	1.	Conversational, 3 ft.	} taken from the side.
„	2.	Whisper, 6 in.	

Watch $\frac{1}{30}$

Rinne—minus 10 sec.

Weber—right.

G₄ tuning fork and high notes of Galton's whistle heard well. On inflation the air appears to pass into a cavity, but not through the sinus, and hearing is not improved thereby. Left side: Meatus and hearing normal.

Mr. WHITEHEAD asked whether any microscopical or bacteriological examination of the fluid had been made, as it seemed important in regard to treatment. The causation was somewhat doubtful; it seemed as if it were secondary to chronic inflammatory trouble, and the question was whether anything further should be done now or whether it should be left.

Mr. LAWRENCE suggested that the meatus should be turned back and the condition behind inspected. The hearing could not be made much worse, and something might be found which would enable the condition to be remedied.

Mr. CHEATLE said he thought it was a case of chronic eczema of the meatus, and that improvement would take place on treatment.

Dr. URBAN PRITCHARD expressed strong agreement with Mr. Cheatle's observations. He thought it was a case of very chronic eczema, in which there was so much thickening that the meatus was almost closed. He asked whether any treatment for eczema had been tried, because that should precede any surgical means.

Dr. KELSON, in reply, said that no bacteriological examination had been made, but the microscopical one pointed to eczema, and there was very little pus in the discharge. It had been persistently treated as eczema, but it had come back as uncured. The treatment had extended

over six months. The question was whether surgical interference was called for. There had never been any pain. When the discharge improved the hearing improved, but there was no permanency.

TWO CASES OF EPITHELIOMA OF THE EAR.

By HUNTER TOD, F.R.C.S.

CASE 1. *Primary Epithelioma of the Tympanic Cavity on the Left Side, with Secondary Infection of the Skin over the Mastoid Region.*—Patient, female, aged forty-four. First seen August, 1906. History of otorrhœa for six months. A large perforation with granulations coming from upper posterior part of tympanic cavity. In spite of antiseptic treatment and frequent curetting away of granulations, healing not obtained. Ossiclectomy November, 1906. Further recurrence of granulations. February, 1907, complete mastoid operation. Auditory canal normal; no external signs of disease over mastoid process; no enlargement of glands. Cortex of mastoid sclerosed; antrum and mastoid cells found filled with granulations. Posterior wound closed, mastoid cavity being packed through the meatus. Rapid formation of granulations within wound cavity. Breaking down of post-aural wound with the formation of a sinus behind ear. In May, wound reopened; granulations curetted out and more bone removed. Malignant disease was suspected from the frequent recurrence and character of the granulations. Microscopic examination confirmed diagnosis of epithelioma. Consultation with Mr. Eve, who suggested tying of branches of external carotid, and at the same time removal of any infected cervical glands. Extensive operation by Mr. Eve in July. For some time afterwards growth seemed to diminish. Tympanic cavity and mastoid region now healed, but epitheliomatous ulcer the size of a halfpenny is situated over the site of the original post-aural incision. There is no further infection of the cervical glands in the anterior and posterior triangles of the neck.

CASE 2. *Epithelioma of Right Auricle, with Secondary Involvement of Auditory Canal.*—Man, aged sixty-two. Warty growth noticed on lower part of auricle for some time. Microscopic examination confirmed diagnosis of epithelioma. Growth freely excised fifteen months ago. Patient did not again come under observation until recently. There is now scarring and perhaps recurrence of the growth on the auricle, with a large polypoid mass filling auditory canal and involvement of pre-auricular and cervical glands.

Mr. WHITEHEAD said the first case was curious and remarkable in several features. The history of antecedent otorrhœa was very short. If carcinoma appeared in the middle ear there was a long history of antecedent otorrhœa, whereas if there were surface malignant disease starting in the auricle or in the auditory canal, it was almost invariably without any antecedent history of otorrhœa. The recurrence in the skin was remarkable, as the original disease was in the deeper parts.

Dr. MILLIGAN had usually found in such cases a history of very chronic otorrhœa; but two days previously he had operated on a case of epithelioma when the history was that the discharge from the ear had only lasted nine months. Cross-examination did not shake the patient in his statement. He had seen one or two cases before in which there had been suppuration for years.

Dr. BRONNER asked for further notes on the cases. He said that some years ago he showed before the Otological Society specimens of three cases, and one of the members said it was impossible. But when attention had been directed to the subject it was found that such cases were not so very rare. In his experience they were nearly always fatal if they arose from the middle ear. There was a history of prolonged suppuration in most of them.

The PRESIDENT said that the first case interested him very much, and reminded him of one he saw many years ago in which the old Schwartze operation had been performed, leaving a sinus. There was still some discharge from the sinus, but an epithelioma developed, beginning at the lower margin of the sinus, and the patient died. In such a case nowadays operative measures would be tried, though he would not be very hopeful of the result. More recently he saw a case in which there was no history of otorrhœa. It was that of an old lady who came to him about two years ago with a very painful affection of the meatus. There was a slight thickening of the meatus, but more like a furuncle. He had a portion examined, and it was reported to be malignant. He turned forward the auricle and removed the diseased part, with the post-auricular gland, which was enlarged; but the disease recurred and she died. As she lived away from Edinburgh he only derived information of the later stages from her medical man.

Mr. TOR, in reply, said that he had to be guided by the statement of the patient as to the duration of the otorrhœa. She had never been under any previous treatment. When he first examined her there was pus coming from the tympanic cavity, and granulations covered its upper and posterior part, but the auditory canal was not involved. He treated the case at first conservatively, curetting away the granulations twice under cocaine. As they recurred he advised removal of the granulations together with the malleus and incus. He did not, at first, think that the condition was anything more than an ordinary middle-ear suppuration. Rapid recurrence of the granulations led him to advise the complete mastoid operation. The outer part of the bone was not affected, but the mastoid process was very vascular and filled with friable granulations, resembling the condition occasionally seen after scarlet fever. He did the complete operation, making a posterior meatal flap and closing the posterior wound with sutures. In spite of no apparent cause the granulations rapidly recurred within the mastoid cavity, and about the third week after the operation there was some swelling and redness at the lower part of the posterior wound, through which granulations began to protrude. The wound was reopened, the granulations curetted away

and more bone removed. Owing to malignancy being now suspected the granulations were submitted to microscopic examination and found to have the character of a typical squamous epithelioma. A consultation was held with Mr. Eve (because, at the London Hospital, extensive operations on the neck, even if secondary to the aural affection, are considered to be within the sphere of the general rather than the aural surgeon.) He (Mr. Tod) suggested removal of the petrous bone and of the cervical lymphatic glands. Mr. Eve operated, but did not consider it advisable to further touch the petrous bone. An extensive incision was made in the neck along the margin of the sterno-mastoid, which was exposed and cut across. Enlarged glands were removed from the posterior triangle. In the anterior triangle, owing to their adherence to the sheath of the vessel, it was necessary to remove part of the jugular vein. The branches of the external carotid artery were then exposed and tied. The mastoid wound was left open and packed with gauze. Gradually the anterior and tympanic portion became separated from the mastoid cavity, and eventually healed completely, so that, on looking into the auditory canal, a skin-lined cavity could be seen. With this the posterior wound became shallower and scarred over, with the exception of the formation of a small pimple at its lower margin. This seemed merely superficial. This small ulcer was removed by free incision; microscopic examination proved it to be epitheliomatous. The patient refused further operation. Since then the ulcer had progressed. There appeared to be no doubt that the present epitheliomatous ulcer was secondary to the original growth which began in the middle ear, which was apparently now completely free of disease.

DEMONSTRATION OF SPECIMENS.

BY WILLIAM MILLIGAN, M.D.

(1) Photographs of two patients suffering from double facial paralysis.—Case 1: Male, aged forty-five. Left-sided suppurative middle-ear disease since seven years of age; admitted to hospital with complete facial paralysis upon the left side, mastoid fistula and post-pharyngeal abscess communicating with the ear, and atrophy of left facial muscles. Developed ear disease and right-sided facial paralysis. Paralysis on the right side recovering under treatment. Case 2: Male, aged thirty-seven. Syphilis contracted seven years ago. Pachymeningitis; paralysis of seventh and eighth nerves upon both sides.

(2) Temporal bone from a case of temporo-sphenoidal abscess with diffuse septic encephalitis of temporo-sphenoidal lobe; hæmorrhage into the lateral ventricle.

(3) Sequestrum from a case of labyrinthine suppuration.

(4) A protector for the facial nerve for use during the performance of labyrinthine operations.

(5) A series of lantern slides illustrative of the anatomy of the middle ear and labyrinth for teaching purposes.

(6) Temporal bone from a case of fracture of the base of the skull.

The PRESIDENT said that Dr. Milligan's preparations and slides were most beautiful, and they illustrated anatomical facts which, while perhaps not calculated to invite argument, were most valuable and instructive.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Thirteenth Annual Session, held in New York City, May 30 and 31, and June 1, 1907.

WENDELL C. PHILLIPS, M.D., of New York, President, in the Chair.

(Continued from page 61.)

A Study of the Ear Symptoms in Arterio-sclerosis, with Special Reference to the Labyrinth.

Dr. JOHN J. KYLE, of Indianapolis, Ind., in this paper confined his remarks to arterio-sclerosis as observed in the productive stage of life, that is, from thirty to fifty years of age. The ear symptoms which should direct attention to a local or general circulatory disturbance were unilateral or bilateral tinnitus, slight and progressive deafness, loss of air- and bone-conduction, dizziness, sometimes early in the disease and in the later stages of the disease, sometimes hallucinations of hearing. These symptoms necessarily varied according to the extent of the sclerosis. In severe hæmorrhage or progressive anæmia deafness and tinnitus might occur, and if the hæmorrhage and anæmia were severe and prolonged the deafness might be permanent. A passive tinnitus or a passive dizziness was probably due to a circulatory disturbance in the arteries of the semicircular canal or special centres of equilibrium. A deafness without dizziness, tinnitus, or Ménière's syndrome, with some general symptoms of arterio-sclerosis, was indicative of thickening in vessels to the nucleus, and if associated with peripheral paralysis might be indicative of disease of the internal capsule. Loss of hearing with dizziness might be due to vascular disorder from tumours in the cerebrum, cerebellum or pons Varolii, as well as to a sclerosis of the labyrinthine artery. Loss of hearing and dizziness continuing for a long time were

valuable signs of vascular disturbance in the entire encephalon. The presence of eye symptoms completed the evidence. A beginning sclerosis of the vertebral artery might press upon and irritate the cervical sympathetic fibres which send fibres to the labyrinth, probably producing tinnitus or dizziness long before the sclerosis had extended to the arteries of the labyrinth. The diagnosis of local or general arterio-sclerosis depended upon the symptoms enumerated above. The disease should be differentiated from Ménière's disease, hyperæmia of the auditory nerve from ingestion of certain drugs, hysterical deafness or nerve deafness from toxic absorption, or hæmorrhagic extravasation into the labyrinth from a fall or blow upon the head. The prognosis depended upon the extent of the sclerosis, that is, whether it is general or local, and the degree of arterial change. The treatment of arterio-sclerosis of the ear was both general and local, depending upon the exciting cause.

Visual Disturbances Showing Causal Relation to Disease in the Sphenoidal Sinuses, with the Report of a Case, together with Coronal and Sagittal Sections, Demonstrating the Relations existing between these Cavities.

Dr. JOHN W. MURPHY, of Cincinnati, Ohio, in this paper reported a case in which the eye symptoms were pronounced, and the causal connection seemed traceable to disease in the sphenoidal cells. This causal connection was confirmed by necropsy. He exhibited specimens which illustrate the close relation existing between the contents of the orbital cavity and the ethmoid and sphenoid cells. That these cavities are more often the seat of disease than is suspected was constantly shown by *post-mortem* revelations. The difficulty of inspecting or even probing the normal sphenoidal opening probably accounted for the low percentage of recorded cases. Many cases of retro-bulbar neuritis doubtless had their origin in a suppurating sphenoidal cell. The fact that the veins of the orbit discharge the greater part of their blood through the ophthalmic veins into the cavernous sinns, which is separated from the sphenoidal cells only by the thinnest of bony walls, sometimes by only a membrane, explained why an inflammation in the one can easily extend to the other and produce all the symptoms of retro-bulbar neuritis. The patient referred to, a man, aged thirty-two, was sent to the hospital by a physician who said he had empyema of the right accessory cavities of the nose, followed by

great mental deterioration, with sudden paralysis of the right external rectus muscle and blindness of the right eye. The patient was apparently well up to three months before admission. There was some exophthalmos of the right eye, which turned toward the nasal side from complete paralysis of the external rectus muscle. There was great pain at the occiput and base of brain. Ophthalmoscopic examination showed almost complete atrophy of the optic disc. The blood-vessels, however, were nearly normal in size and number. There was an offensive discharge from the right nostril both posteriorly and anteriorly. The probe showed extensive necrosis of the posterior ethmoidal cells and the sphenoidal sinus. Upon operation the entire right half of the sphenoid bone was necrosed and movable. The patient rallied from the operation, and did not again complain of the pain at the occiput and at the base of the brain. His mental condition improved. He died five weeks after the operation from a combination of intercurrent complications.

Symposium: Purulent Affection of the Labyrinth Consecutive to Disease of the Middle Ear.

Pathology.—Dr. CLARENCE J. BLAKE, of Boston, Mass., discussed this phase of the subject. The labyrinthine capsule varied greatly in its juxtaposition to the neighbouring tympanic cavity, this variation being due to irregularities in the contour of the tympanum, epitympanum, and additus, and the differing degrees in which both pneumatic spaces and their surrounding diploë encroach upon the base of the petrous pyramid, thus affording readiness of access of pyogenic material from the tympanic spaces to the labyrinthine capsule. Another variable element was the labyrinthine delimitation, which in some places is impossible and in others representable only by a slit-like line of demarcation. Regarded from the tympanic side the most vulnerable points of attack would appear to be the windows, the horizontal semicircular canal and the promontory. Regarded structurally, in its relationship to a suppurative middle ear, the intact labyrinth presented a capsular environment jeopardised by relationship to the source of invasion, hazarded by anatomical approaches which penetrate its walls, and safe-guarded from within, mechanically, by the extrusive force of its fluid contents. When once the labyrinth had become invaded the spread of the inflammatory process throughout its intimate structures became rapid and complete, the interference

with the blood supply progressed and the negative process of necrosis tended to supplant the active process of caries, the chronological sequence, in any given case, being dependent upon both local structural and general systemic conditions. Viewed from the standpoint of the middle ear, wherever the attack might be made and whatever the degree of distortion or of destruction, the pathological sequence was the same, from the superficial layer of the soft tissue lining of the tympanum inward, into and through the underlying bone; irritation, hyperæmia, congestion, normal exudate, maceration, erosion, pathologic exudate, accumulation of detritus and formation of extrusive granulomata; separation of the periosteum, penetration of the outer cortical layer and suppurative extension through the Haversian canals, the destruction of the bone being further favoured by the invasive interstitial granulomata, with their newly-created blood-vessels, and their blocking of the normal blood-supply, producing a tissue change which is both a caries and a necrosis intimately combined. With penetration of the capsule there followed separation of the endosteum, and, with its penetration and the sequent involvement, the invasive cycle was complete. It was important to consider the part played by mucin in what might be called the mechanism of septic invasion of the labyrinth. Of the systemic conditions favouring labyrinthine septicæmia the exanthemata of childhood, especially scarlet fever and measles, were important, while of the more chronic disorders tuberculosis, diabetes, and syphilis were influential in frequency in the order mentioned. Of the accompaniments of the septic invasion of the labyrinth paralysis of the facial nerve was frequent and important, and was incident to penetration of its bony canal at some point in the relationship of its course to the septic middle ear or labyrinth.

Symptomatology and diagnosis.—Dr. HENRY O. REIK, of Baltimore, Md., read this paper. Chronic suppurative otitis was almost always the character of the middle-ear disease preceding purulency of the labyrinth; very rarely did the inner ear become involved during the acute stage of otitis. The period of chronicity necessary to allow the deeper invasion varied in the reported cases from six weeks to thirty-one years. As predisposing factors, some constitutional dyscrasia, such as tuberculosis or diabetes, or the exanthematous fevers, such as scarlet fever and measles, were generally present. There was no difference in vulnerability as regards sex, nor between the right and left ears. The general symptoms of purulent otitis interna were fever, headache, nausea, and vomiting;

the special symptoms were tinnitus aurium, impaired hearing, co-ordination disturbances, facial paralysis, intra-tympanic appearances.

A positive diagnosis could be made from pre-operative study of the case. In the majority of cases treatment must be instituted upon the basis of a probable lesion, the proof of whose existence depended upon an exploratory operation. The natural sequel of untreated purulent otitis interna was death by lepto-meningitis or encephalitis; consequently, as most of the observed cases were the result of neglect, a differential diagnosis must be made between labyrinthitis and the intra-cranial complications of otitis media.

Dr. JOHN D. RICHARDS, of New York City, read a paper on the treatment of purulent affections of the labyrinth consecutive to disease of the middle ear, detailing a series of cases illustrative of what he considered the best method of treatment. The various steps of the operative procedure outlined by him were elucidated by a number of admirable drawings.

Dr. FREDERICK L. JACK, of Boston, Mass., cited two cases. In the first purulent involvement of the labyrinth followed within a week an acute middle-ear suppuration. All the symptoms disappeared in a short time with the exception of the profound deafness, which is always likely to remain. In the other case the entire osseous labyrinth, a most perfect specimen, was removed as a sequestrum. There was no history of vertigo or vomiting. In chronic cases this exfoliation might occur without any direct symptoms such as would be found in an acute invasion.

Dr. F. C. ARD, of Plainfield, N.J., cited a case of serous meningitis following otitis media. Dr. RICHARDS suggested the possibility of draining the subarachnoid space through the internal ear. This was done, and the patient lived seven or eight days subsequent to the operation with almost complete relief from pain.

THIRD DAY, JUNE 1.

Symposium on the Faucial Tonsil.

Modern surgery of the faucial tonsils.—Dr. ROBERT C. MYLES, of New York City, in this paper divided the faucial tonsils, for purposes of description, into four classes, according to their relationship to the surrounding parts: (1) The faucial type, pedunculated in character, in which almost the entire tonsil is situated within the open space between the pillars of the fauces; (2) the palatolinguinal type, in which one lobe of the gland is attached below and

posteriorly near the tongue or posterior pillar, and the other lobe — usually one half — forms a palatal segment which extends upward, outward, and anteriorly for one quarter to three quarters of an inch within the faucial pillars; (3) the embedded type, in which at least three fourths of the hypertrophied organ is embedded in the faucial and palatal walls; (4) the intermural type, in which practically all of the tonsil is situated between the palatal and faucial walls. The simple removal of a tonsil with a guillotine was satisfactory in the first class, but the other three classes presented conditions which test the surgeon's skill and efforts. The odour from the detritus expressed from the lacunæ or the supra-tonsillar fossæ should have weight in determining the operative procedure. The most constant and most important sign that surgical interference with the tonsil is imperative was the enlargement of the cervical glands. It was not feasible or safe in classes 2, 3, and 4 to remove all of the capsule in cases where there is extensive development of the lymphoid tissue within the faucial and palatal walls. When the capsule covering the anterior portion of the tonsil posterior to the free border of the palato-glossus muscle projected prominently and formed the involucrel or opercular fold of Harrison Allen, he usually removed this part of the capsular sheath, which is composed mostly of mucous membrane. The central tonsil mass was seized with dull forceps or tenaculum and drawn through a very small Mackenzie tonsillotome or wire loop, and severed. This step was followed by the use of the author's punch forceps, preferably those with cutting blades placed at an obtuse angle to the shaft, the cutting being done upward, outward, and forward. When, in the case of a child, the operation was done under general anæsthesia, both tonsils, including the palatal lobes, and the adenoids might be removed. An important part of the technique consisted in the inversion of the capsule, after the removal of the central part of the base of the tonsil, and the removal of all the lymphoid tissue which had previously been situated so deeply within the walls of the fauces. Hæmorrhage, either immediate or secondary, might be controlled by placing over the bleeding tonsil a layer of cotton covered with a paste of tanno-gallic acid, and holding it in place for from five to fifteen minutes. If this did not suffice a fine catgut suture might be passed through the tissue at the bleeding point.

(To be continued.)

PROCEEDINGS OF THE PARISIAN SOCIETY OF
LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

Meeting held on December 6, 1906.

The President, Dr. WEISSMANN, in the Chair.

SEVERE SECONDARY SYPHILIS OF THE LARYNX.

Dr. CASTEX showed a young man affected with severe secondary syphilis of the larynx. Although the condition seemed to be unknown to the patient, its nature was confirmed by the presence of papules on the glands and mucous patches on the upper surface of the tongue, on the lower lip and the anterior pillars of the palate. The larynx was much infiltrated in its entirety, but particularly on the epiglottis, which was thickened and covered with artificial ulcerations. It was almost impossible to see the interior of the larynx. The patient was several times threatened with suffocation. There was, however, no pain in swallowing, which eliminated the idea of tuberculosis. The young man had already received two injections of 2 c.c. each of benzoate of mercury. They had produced a little improvement.

FREE SEQUESTRUM IN THE RIGHT NOSTRIL, PROBABLY OF TRAUMATIC
ORIGIN, THE MUCOUS MEMBRANE BEING INTACT.

Dr. KOENIG showed a man, aged about forty-five, complaining of catarrh and subjective cacosmia. Examination of the right nostril revealed a thin triangular osseous sequestrum of about 1 c.c. in bulk, resembling a portion of the vomer, and placed perpendicularly to the floor between the septum and the turbinates. After its extraction there was no ulceration, loss of substance or ulceration of the mucous membrane to be found. There was no previous history of syphilis, but five years previously the patient had received a violent blow with the fist on the nose, which was followed by an abundant epistaxis, which, however, stopped spontaneously.

AN EXTENSIVE ANGEIOMA OF THE VELUM PALATI AND PHARYNX.
TREATED BY ELECTROLYSIS.

Dr. PAUL LAURENS showed the woman whom he had brought

forward at a previous sitting. The result obtained was most satisfactory, in so far as there was a disappearance of the tumour and normal movement of the velum. There only remained a slight violet tint and some small varicose lines.

TUMOUR OF THE RIGHT PIRIFORM SINUS.

Dr. PAUL LAURENS showed a patient with this affection. The diagnosis had to be made between gumma and malignant tumour.

Dr. LOUBET-BARON offered a diagnosis of epithelioma, but he thought that it would be still right to try the effect of the iodide treatment by increasing the dose, which might extend from 2 to 6 grms. daily; this last dose appeared to him to be necessary in order to settle the question.

Dr. KOENIG differed from the other members of the Society and thought that the patient was not beyond reach of operation. The extent of invasion did not seem so pronounced as in the cases brought before the Laryngological Society of London two or three years ago by Lambert Lack, in which this surgeon obtained brilliant operative successes after all his colleagues had declared the cases to be inoperable.

MEANS FOR KEEPING ASEPTIC THE NEEDLES USED FOR PARACENTESIS OF THE TYMPANUM.

Dr. LERMOYEZ described his method as follows :

Sterilisation in the cold by means of chemical agents is the traditional method, but entirely illusory ; it is more dangerous to the fragile instruments of the specialist than to the microbes which they bear. Absolute alcohol or chloroform, as often employed by aurists, have no microbicidal action, even after a contact of forty-eight hours.

Sterilisation with heat is the only means which affords security. Nevertheless, dry heat is not advisable for fine needles. Flambage, if it is fully carried out, destroys them completely, and the stove with dry superheated air takes too long and is untrustworthy.

Moist heat is much to be preferred, and boiling for ten minutes in a 2 per cent. solution of carbonate of soda gives excellent results. However, this proceeding cannot be employed for instruments "in reserve," which ought to be kept antiseptic for a length of time, and always ready for use at any moment. The process he recommends is to place the needle in a tube which can be well

closed, full of a 2 per cent. solution of borate of soda, which prevents rusting. This tube must be put in the stove for half an hour at 120°C . and is then closed. The specialist has thus a series of tubes which can be kept indefinitely, and from which he can at any moment draw his instruments, rigorously sterile.

MODIFICATIONS IN THE CLASSICAL TECHNIQUE OF ADENOTOMY.

Dr. LERMONEYZ remarked that two great steps had been made in this operation by the introduction into the specialty of Camus's mask and Fein's adenotome.

Camus's mask had rendered anaesthesia more simple and less dangerous. He used chloride of ethyl. This anaesthetic had immense advantage over bromide of ethyl by its being almost instantaneously eliminated and disappearing from the blood in one or two minutes after the patient's awakening. From this it resulted that the patient, when he had once returned to himself, felt no symptoms of consecutive intoxication (headache, somnolence, vomiting, foetid breath), which are the inevitable accompaniments of anaesthesia by bromide of ethyl, because the fixation of bromide of ethyl in the blood is so powerful that it requires two or three days for its liberation. Up to the present, however, chloride of ethyl did not seem to have attracted specialists because it was uncertain on account of the extreme volatility of the substance, from which it was difficult to make the patient absorb a definite quantity, either too much or too little being given. Camus's apparatus, by making it possible to put to sleep a child or an adult mathematically with, at the most, two or three cubic centimeters of chloride of ethyl, had rendered this mode of anaesthesia eminently practicable. Since Dr. Lermoyez had adopted this apparatus he had observed such gratifying effects that he had given up bromide of ethyl entirely, as he had always had some anxiety when administering it.

Fein's adenotome was a very original instrument, which at first astonished to some extent the hands accustomed to the straight classical adenotome, but which, apart from any prejudice, soon afforded conviction as to its superiority.

Constructed on the mechanical principle of the crank, and pushing back the point of rotation of the instrument to the outside of the mouth, it was possible to make a complete curettage of the cavity without any consideration as to the degree of separation of the jaws. The blade was capable of describing a course of half its

circumference. It went sufficiently high to reach the retro-choanal vegetations, which were often inaccessible to ordinary curettes, and it descended sufficiently low to bring away automatically into the mouth the vegetations which are cut off.

EXTERNAL PROTHESIS WITH COLD PARAFFIN.

Dr. MAHU showed a young woman whose nose, which had been seriously disfigured by lupus, had acquired quite a presentable appearance. He drew the attention of his colleagues to the use of the cold process, which was absolutely without danger, and to the advantages which there were in substituting it for the hot methods whenever possible.

A NEW COMPRESSED AIR VENTILATOR FOR THE HOT-AIR APPARATUS.

Drs. LERMOYEZ and MAHU showed a new generator of compressed air worked by electricity.

This apparatus, constructed by Gaiffe, was extremely simple; it was in the form of a disc, of two centimeters in thickness and twelve in diameter, and it could be put in movement directly by an ordinary motor as used by specialists, by fixing the two apparatuses end to end and axle to axle. The aspiration tube could replace a tube for making a vacuum.

G. MAHU, *General Secretary*.

Abstracts.

PHARYNX.

Jauquet, E.—*Two Cases of Naso-pharyngeal Polypus operated on by Different Methods.* "La Presse Oto-laryngologique Belge," July, 1907.

A youth, aged fifteen, with symptoms of four months' duration, was the subject of a tumour nearly filling the naso-pharynx, more developed on the left side than on the right, and adherent to the end of the left middle turbinal body. During an unsuccessful attempt to remove the growth through the mouth adhesions were discovered in the ethmoid and vomerine regions. A curved incision was then made from the middle of the eyebrow to the ala nasi, passing round the inner angle of the orbit. The ascending process of the maxilla, the nasal and lacrymal bones, and a part of the os planum, were resected, as well as the inner wall of the antrum of Highmore and the inferior turbinal body. The tumour was well in view; it was removed with a rugine. Recovery was rapid and complete.

The second patient was a man, aged fifty-three, with a tumour the size of a hen's egg. He was operated on through the mouth, in the inclined position, under chloroform narcosis. *Chichele Nourse.*

Fallas, A. (Brussels).—*Phlegmons of the Neck of Bucco-pharyngeal Origin.* "La Presse Oto-laryngologique Belge," August, 1907.

Notes of four cases of infective cellulitis of the neck, with comments upon the mode of origin and treatment of this dangerous affection. A short bibliography is annexed. *Chichele Nourse.*

Dawson, Bertram.—*Röntgen Rays as an Aid to the Diagnosis of Stricture of the Esophagus.* "Lancet," October 26, 1907.

The author describes the method of watching the descent of the thick emulsion of bismuth by means of the Röntgen screen. The results are better seen if the observer stands in a dark sentinel box for ten minutes before the radiograph is thrown on to one side of it.

StClair Thomson.

NOSE.

Vernieuwe (Ghent).—*A Contribution to the Study of Closed Ethmoidal Sinusitis.* "La Presse Oto-laryngologique Belge," June, 1907.

The records of two cases of ethmoidal empyema, of which the first is an example of infection of a pre-existing mucocele, and the second of primary closed sinusitis. A copious bibliography is appended.

Chichele Nourse.

Galebsky.—*Intra-tracheal Injections in the Treatment of Chronic Diseases of the Lungs.* "Russkii Vrach," No. 26, 1907.

Dr. Galebsky considers the method again, and brings much experimental evidence to show its superiority over inhalations. The author has studied the effect of such injections upon animals, the parts of the lungs reached by the liquids used, and the character of the reaction set up in the lungs. The dogs experimented upon stood the injections very well, the amount used reaching 30 c.c., introduced by means of a modified Pravaz syringe, 5 c.c. at a time. In using eucalyptol and menthol it was possible to show that the drugs reached the alveoli of the lungs, while the direction of penetration could be easily controlled by placing the animal on one or the other side for some minutes after the injection. Oil of sweet almonds and salt solution produced hardly any reaction, while eucalyptol and menthol, which later were used on patients, in dogs produced some slight changes, such as mild catarrhal reaction and the appearance of some granulation tissue in the interalveolar spaces. The method was then applied in the treatment of seventeen patients, fourteen of whom were suffering from tuberculosis, two had putrid bronchitis, one simple bronchitis, and one suffered from bronchiectasis with beginning gangrene of the lungs. The patients were always placed in the position for laryngoscopy, and the point of the syringe was introduced beyond the vocal cords under the control of the mirror. Cocaine used in the first injection was dispensed with later on, and the drugs used—chiefly eucalyptol and menthol—were introduced dissolved in sweet almond oil. The patients were then placed on one or the other side, depending upon the localisation of the disease in the lungs.

The most important effect was found in the diminution of cough, which before treatment was robbing the patients of sleep and interfering with their general well-being.

Galebsky's animal experiments with subsequent pathological study apparently prove that the injected liquids reach the alveoli of the lungs, the interstitial tissue, and the bronchial glands much more surely than the drugs introduced by inhalation. *Lauzun-Brown.*

Beck, H. G., and Stokes, W. R.—*An Epidemic Pneumococcal Catarrhal Disease.* "Journ. of Amer. Med. Assoc.," September 14, 1907.

The authors give an account of a peculiar epidemic that has appeared in two separate years in Baltimore. The disease exists as a distinct entity, occurs in the spring months, though similar epidemics have occurred in the autumn, and is characterised by purulent or fibrous inflammation of the mucous membranes of the eye, nose and throat. There is a characteristic, usually spasmodic cough, sometimes resembling pertussis. The disease commences with chilliness and slight fever, with sneezing, lacrymation, and mucous nasal discharge. There may be an associated bronchitis, but the symptoms indicate the chief trouble to be in the upper end of the air-passages. There are no serious nervous symptoms and little or no physical or mental depression: the average duration is from one week to ten days, though the cough often continues longer. The disease is infectious, running through families, and even animals do not appear to be altogether immune. Epidemic catarrh lacks the gastro-intestinal symptoms, constipation, or diarrhoea, due to the *Micrococcus catarrhalis*. So far as the eye symptoms are concerned, the disease is the same as the pneumococcal conjunctivitis described by Kölle and Wasserman as occurring in Europe in 1896. In most of the cases examined bacteriologically the pneumococcus was found, giving the usual culture and staining characteristics and producing characteristic effects in inoculation experiments. *Lauzun-Brown.*

LARYNX.

Felix, Eugene (Bucharest).—*Laryngeal Paralysis in Goitre.* "Arch. Internat. de Laryngol., d'Otol., et de Rhinol.," tome xxiv, No. 6, November—December, 1907.

The author brings together a considerable collection of opinions bearing upon two points: (1) the anatomical relations between the recurrent laryngeal nerve and the inferior thyroid artery; and (2) the occurrence of recurrent paralysis in goitre, particularly after operation.

With regard to the anatomical relations between the nerve and the artery the trend of opinion seems to be that while considerable variation exists, the rule is that on the left side the nerve lies behind the artery, and on the right side the nerve lies in front of the artery, thus fulfilling the expectation we should be likely to form when we remember that in the whole of its course the right nerve lies more anteriorly than the left.

On the question of the occurrence of recurrent paralysis the author has collected a large number of statistics, many of which are unfortunately vitiated by the fact that the cases reported were not submitted to

laryngoscopic examination. Rather more than 3000 operations are collected, and of these nearly 200 were afflicted with laryngeal paralysis after operation, *i. e.* between 6 and 7 per cent.

Sometimes the paralysis does not appear till long after the operation. Juliard, for example, reports a case where the patient left hospital without any sign of vocal impairment, but returned four months later with paralysis of one cord; and other observers have recorded similar experiences. Many of these cases are ascribed to the implication of the nerve in the scar.

The cause of the paralysis is not always the division of the nerve or its inclusion in a ligature, for many cases are on record where simple manipulation or "pulling about" of the recurrent was sufficient to induce paralytic phenomena, and it would even appear that the simple application to the unsevered nerve-trunk of antiseptic solutions, especially those made up with phenol, is occasionally followed by transitory paralysis. Monnier reports an interesting case of the former. He was operating under local anaesthesia on a goitre, and by chance included the recurrent nerve in the ligature of the inferior thyroid artery. He was at once apprised of the accident by a sudden change in the patient's voice, and the ligature was forthwith removed, but the corresponding vocal cord remained paralysed for three months. Complete recovery ultimately occurred.

Post-operative recurrent paralysis is, therefore, not necessarily permanent. The cases in which the nerve has simply been injured by pulling, antiseptics, etc., are, of course, more likely to recover than those where the nerve has been severed or caught up in a ligature, but even after division the cut ends frequently unite. Indeed, von Navratil is responsible for the report of a case operated on by him in which $1\frac{1}{2}$ cm. of the recurrent nerve was accidentally excised, with consequent complete paralysis of the cord. But this entirely disappeared, we are told, after several applications of electricity.

Frequently, but not invariably, laryngeal paralysis due to the pressure of a goitre is cured by the operation. Goris thinks that in such cases of goitre-paralysis resection of the tumour should be adopted in preference to extirpation, but this is not the generally accepted opinion, since, if the operation is performed in such a way that the nerve is identified and isolated throughout its course between the inferior thyroid artery and the "inferior constrictor muscle," extirpation is quite safe. If the nerve is cut during the operation it should at once be sutured.

Felix draws attention to the necessity for careful examination of the larynx both before and after the operation.

Dan McKenzie.

Lenhartz (Hamburg).—*Experiments with Calmette's Ophthalmic Reaction and von Pirquet's Cutaneous Tuberculin Test.* "Münch. Med. Woch.," November 26, 1907.

Lenhartz has tried the reactions in 111 persons, in 37 who were undoubtedly tuberculous. Of these 15 had been already treated with tuberculin and might, therefore, be immune. The cutaneous test was negative in 6 of them, well marked in 4, distinct in 2, and doubtful in 3; whereas the ophthalmic test was positive in 11, doubtful in 2, and not tried in 2. In 11 who were clinically non-tuberculous (9 adults and 2 children), both tests were positive in 4, the cutaneous positive in 1, and in the remaining 6, 3 gave negative reactions to both, 2 to the cutaneous (the ophthalmic not tried), 1 to the ophthalmic (the cutaneous

not tried). Of the 5 "positive" cases 4 had heart disease, chorea, perimetritis, catarrh of intestine respectively, and 1, apparently sound, was of delicate parentage. Of 63 suspicious cases 23 were positive to both, 40 negative to the cutaneous, and 36 to the ophthalmic (this being omitted in 4). The cases which were positive to these tests all reacted to the old tuberculin, and the tested conjunctiva became again congested.

Dundas Grant.

EAR.

Delsaux, V.—*Remarks Based on Six Cases of Thrombo-phlebitis of the Cranial Sinuses of Otic Origin.* "La Presse Oto-laryngologique Belge," July, 1907.

The author directs attention to the fact, observed by Arnold, Neisser, and Metchnikoff, that penetration by the morbid germs takes place in the first instance by the vasa vasorum. Following this, the inner coat of the vein undergoes alteration, and a thrombus is formed. If the infection is very virulent the thrombosis rapidly fills the vein; if it is less severe the thrombus extends only along the wall. This special condition of the vein-wall affords an explanation of unsuccessful cases following treatment of thrombo-phlebitis.

When the jugular vein is tied in a situation where, besides being affected with endo-phlebitis and containing a thrombus, the wall of the vein is inflamed, not only is the thrombosis not arrested thereby, but a fresh attack of thrombo-phlebitis is started.

Chichele Nourse.

Baber, C. Cresswell.—*On the Megaphone in Cases of Deafness.* "Lancet," October 12, 1907.

The author recommends an instrument measuring 12 in. in length $6\frac{3}{4}$ in. in diameter at the large end, and $2\frac{1}{2}$ in. in diameter at the mouth-piece. It is made of glazed cardboard or metal, and is very inexpensive. It avoids the necessity of putting any tube or ear-piece into the patient's ear, and enables one to speak to the deaf person without first drawing his attention.

Stclair Thomson.

Geigel (Wurzburg).—*The Function of the Auricle.* "Münch. Med. Woch.," November 19, 1907.

The author considers that the cartilage of the auricle enters into vibration and in that way helps to conduct sound. To neutralise this, in the case of artillerymen or others exposed to noises, he recommends compressing the tragus against the concha by means of the finger or a spring-compression pad, or filling the concha with moistened cotton-wool.

Dundas Grant.

MISCELLANEOUS.

Haun (Gladenbach).—*Narcosis with Warm Chloroform.* "Münch. Med. Woch.," November 26, 1907.

Observing that in the tropics chloroform narcosis is almost absolutely free from danger, the writer tried the effect of warming the chloroform. He did this by placing the drop-bottle filled with chloroform in hot water from time to time during the administration. He considers the results better than with cold chloroform. He discusses the reasons therefor.

Dundas Grant.

THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

RETIREMENT OF PROFESSOR POLITZER.

PROFESSOR ADAM POLITZER retired from his official position in connection with the University of Vienna on October 1, 1907, after forty-seven years of activity.

In the presence of a most distinguished gathering, which included many of his past assistants, he was the recipient of numerous addresses conveying the expression of the esteem and goodwill of the speakers and signatories. He replied in a happy and impressive way, and in his farewell speech conveyed much important advice, and expressed some views well worthy of consideration.

He strongly insisted on the importance of the study of the pathology of the ear, and expressed his indebtedness to the Burgo-master, Dr. Seiler, and the municipal authorities, who had in the most broadminded way placed the valuable resources of the public infirmary at his disposal for the advancement of his special branch of medical science. For thirty years he profited by this so as to investigate clinically and autoptically many forms of disease for which the hospitals afford little available material. Among these he includes adhesive processes in the middle ear, cholesteatoma and oto-sclerosis. It was with regret that he informed us that the Vienna infirmaries are now shut so far as the advancement in science is concerned. He pleaded for a return to the large-minded

policy of the earlier rulers. Professor Politzer considers that during the period which he has lived through otology has made more progress than almost any special branch of medical science. The influence of the development of bacteriology had in his opinion been enormous.

While recognising the great amount of work that had been done he referred to much that remained to be accomplished, and dwelt on the gaps still remaining in our knowledge of the pathology and diagnosis of diseases of the labyrinth and the cerebral disturbances of hearing. What a triumph it would be for science, he continued, if we could find out the cause of oto-sclerosis and check its evolution.

He attributed the frequency of the complications of ear disease to the miserable conditions of life among the poor, and called on the municipal authorities to clear away the numerous hot-beds of infectious disease and provide better housing for the impoverished classes. He exhorted his younger followers to a whole-hearted devotion to their branch of science and to a firm hold to truth and reality, avoiding the slippery paths of hypothesis. As a practical factor in the production of scientific work he advocated a strict and purposive distribution of time, not omitting a period for the study and enjoyment of those classical literary and artistic works which have such a beneficial effect on the mind of the scientific investigator. Above all he recommended the Horatian *equus animus* throughout all the stages of life.

To those who have periodically had the pleasure of meeting Professor Politzer it will be inconceivable that he has reached the "age-limit" in any except the official sense, and they will wish him a long continuance of that bodily and mental vigour which they have so much envied and admired.

ABNORMAL PULSATING VESSELS IN THE PHARYNX.

BY JAMES GALBRAITH CONNAL, M.B., F.F.P.S.G.,

Lecturer on Aural Surgery, Anderson's College Medical School; Assistant Surgeon, Glasgow Ear, Nose, and Throat Hospital, etc.

THE abnormal distribution of vessels in the pharynx and nasopharynx is a subject of practical importance to the general surgeon, and more especially to the rhinologist and laryngologist.

At a recent meeting of the Glasgow Medico-Chirurgical Society I showed a series of nine cases and read notes of three others

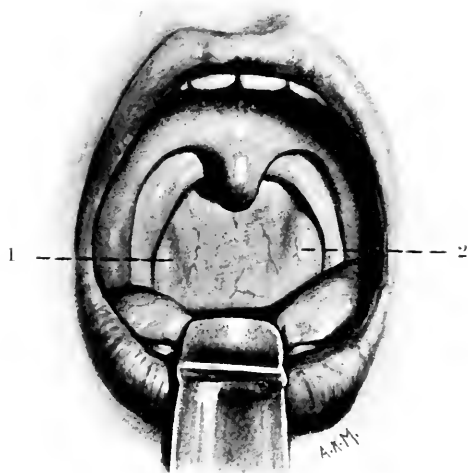


FIG. 1.—Abnormal pulsating vessels in the pharynx (bilateral). The dotted lines (1 and 2) indicate the position of the vessels.

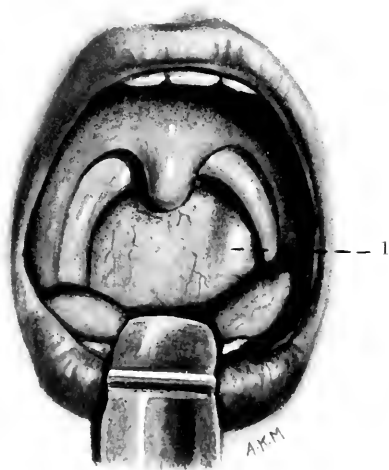


FIG. 2.—Abnormal pulsating vessel in the pharynx—unilateral, left side. The dotted line (1) indicates the position of the vessel.

TO ILLUSTRATE A PAPER BY MR. JAMES GALBRAITH CONNAR ON "ABNORMAL PULSATING VESSELS IN THE PHARYNX."

(making twelve cases in all), where there were abnormal pulsating vessels in the pharynx. In some of the cases the pulsating vessel was bilateral. The condition was met with in six women, three men, and three young boys. With the exception of the three men, whom I saw at the Poor's House, all the others were met with in the course of a routine examination of the pharynx of patients presenting themselves for treatment during the last two and a half years.

The pulsating vessel is situated behind the posterior pillars of the fauces, and in most cases ascends to the naso-pharynx. Pressure over the common carotid artery in the neck appreciably diminished or abolished the pulsation in the pharynx. In three cases the abnormal vessel was bilateral (Fig. 1), but more marked to the left side in two. Where the vessel was unilateral (Fig. 2), it was seven times on the right side and twice on the left side. In four of the patients the vessel was small, but with distinct pulsation. In the other eight the pulsation was marked and gave the observer the impression of a large vessel.

The men were all paupers from the Poor's House, one aged fifty years and two aged sixty years. In one of these men there was a heaving impulse to the tonsil and posterior faucial pillar.

The condition was met with in three boys (aged respectively six, ten, and eleven years) all of whom had nasal obstruction from the presence of adenoids, or tonsils and adenoids. In one of the boys the pulsation was bilateral and very marked, communicating a heaving impulse to the left tonsil, which was hypertrophied.

My notes regarding the adults are not complete in two cases. Three adults had tinnitus. One woman, aged thirty-eight, with purulent otitis media and marked bilateral pulsation (Fig. 1) had occasional tinnitus like bells ringing. Another female with chronic adhesive catarrh and marked bilateral pulsation complained of a constant, low-pitched, hissing sound. In these two patients the abnormal vessels had evidently no connection with the subjective sounds, but in the third case a young woman, aged twenty-three, with chronic adhesive catarrh and unilateral pulsation in the pharynx, the proximity of the vessel did influence the tinnitus, which, however, was not constant but occasional, and described as a rushing or beating sound in both ears, the beat being synchronous with the pulse at the wrist. This patient mentioned that when she took hot fluids the rushing sound in the ears was much worse.

In none of these cases could the tinnitus be objectively per-

ceived by means of the diagnosis tube connecting the patient's ear with that of the observer.

With regard to the identity of the vessel involved, most observers have ascribed the pulsation to the ascending pharyngeal artery—a branch of the external carotid. But Schmidt and Kelly attribute the abnormal pulsation to the internal carotid artery. In Kelly's paper (*Glasgow Medical Journal*, January, 1898, where there is a valuable list of references to the literature of the subject), there is a drawing by Dr. A. Macphail, lately of Glasgow, from a specimen in the Glasgow University Anatomical Museum, where the internal carotid artery on both sides is bent inwards on itself so that the curve would place the artery half an inch inwards to its normal position. In confirmation of this view Edington (*British Medical Journal*, November, 1901) described a dissection where both internal carotids were tortuous and appeared external to the posterior pillars of the fauces at the level of the middle part of the tonsil. From here the horizontal portion of the vessel passed backwards on the lateral wall and then turned downwards. This tortuosity of the internal carotid artery in old age is known to anatomists and is mentioned in most of the books. In Edington's case the subject was aged thirty-four, and had died of chronic Bright's disease, and the suggestion was made that the tortuosity might be associated with the arteritis of chronic nephritis.

The choice as to the identity of the vessel seems to lie between the ascending pharyngeal artery and the internal carotid artery. I would suggest, however, that it is not always the same vessel we see, that in some cases it may be an ascending pharyngeal artery, while in others it may be the internal carotid artery with an abnormal curve. In the slighter cases of pulsation it is not easy to believe that it could be the internal carotid artery; the size of the vessel is more suggestive of the ascending pharyngeal; while in the more marked pulsations, though the position is more that of the ascending pharyngeal, the size of the vessel is more suggestive of the internal carotid artery.

A series of cases such as I showed seems to warrant the conclusion that abnormal pulsating vessels in the pharynx are much commoner than the references in literature would lead us to suppose. There is sometimes a slight difficulty in detecting them, the movements of the posterior faucial pillars and of the lateral walls of the pharynx are apt to mask the pulsation, while in the slighter cases the movements of the tongue must be well under control.

At my suggestion my friend Dr. Allison examined a series of

cases under his care in the Govan Combination Poor House. He found abnormal pulsating vessels to be present in 7 out of 250 males examined, five times on the right side and twice on the left side. In 2 of these cases the pulsation was communicated to the right tonsil. In 150 females abnormal pulsating vessels were noted in 6—twice on the right side and four times on the left side. Forty children were examined with negative results.

In my own cases the urine was not examined, but Dr. Allison found slight albuminuria in two of the male patients. In all others the urine was normal.

CHRONIC MIDDLE-EAR DEAFNESS.

BY W. SOHIER BRYANT, A.M., M.D.,
New York.

OUR grandfathers classified ear diseases in two categories—those that got well without treatment and those that resisted all treatment. In our day there are very few cases of chronic middle-ear deafness that cannot be improved. The exceptions are the cases of malformation of the middle ear, the cases of advanced stapes fixation and those of extremely advanced oto-sclerosis.

The amount of the possible improvement in hearing is in inverse ratio to the pathological changes. Chronic deafness from past or present suppuration of the middle ear can, without exception, be helped by treatment. The amount of help depends upon the power of the patient to make repair and to substitute parts which have been lost. Deafness following middle-ear catarrh is more resistant.

When we realise that about 98 per cent. of the cases of chronic deafness are due in whole or in part to middle-ear disease, then we appreciate the great frequency of chronic middle-ear deafness. About 84 per cent. of the cases of chronic middle-ear deafness are due to middle-ear diseases alone, while 14 per cent. are due to middle-ear diseases combined with diseases of the inner ear. Of the cases of chronic middle-ear deafness, about 83 per cent. are due to chronic middle-ear catarrh alone; 15 per cent. are due to present or past suppuration of the middle ear; 1 per cent. due to stapes fixation and less than 1 per cent. to congenital malformation of the middle ear. The fifteen cases which are the result of suppuration are often complicated by chronic middle-ear catarrh.

We see, therefore, that 98 per cent. of chronic cases of middle-ear deafness are due in whole or in part to "chronic middle-ear catarrh."

Chronic middle-ear catarrh makes about 69 per cent. of all chronic deafness, while middle-ear suppuration causes about 13 per cent. of chronic deafness. The causes of chronic middle-ear catarrh arise in the naso-pharynx and affect the middle ear by interfering with the Eustachian tube. The aim of treatment is, first, to restore the functions of the Eustachian tube, and second, to correct the defects of the middle ear. By treatment of naso-pharynx prophylaxis of these defects is easily assured.

The causes of stapes fixation are trophic disturbances. Not only must these disturbances be checked but their recurrence must be prevented.

The chief difference between the ætiology of middle-ear suppuration and chronic middle-ear catarrh is pyogenic bacterial infection. Suppuration occurs almost never independent of naso-pharyngeal disease. Prophylaxis of chronic middle-ear deafness due to suppuration is secured by preventing purulent inflammation through care of the naso-pharynx. But if suppuration has already begun the hearing is preserved by immediately stopping the suppuration and by treating the naso-pharynx appropriately. If any suppuration should exist in chronic middle-ear deafness it must immediately be arrested. If perforations of the membrane exist they must be closed by the growth of cicatrices. In order to compensate for the important parts of the sound-conducting mechanism which may have been lost it is necessary to adjust mechanical appliances. Adhesions of important parts must be loosened.

Besides showing the second stage of stapes fixation (10), the following cases also show the three conditions caused by chronic middle-ear suppuration, together with their nine methods of treatment (1-9). The thirteen conditions of chronic middle-ear catarrh and their treatment are also shown (11-24).

(1) CASE No. 12076.—A man, aged thirty-four. Chronic middle-ear suppuration with impaired hearing for six years. Perforation of Shrapnell's membrane. Politzer's aconimeter heard less than 3 ft. Nine weeks later after cleansing treatment and cessation of suppuration aconimeter heard at 35 ft. Improvement has persisted to the present time, covering a period of three years.

(2) CASE No. 13016.—A man, aged twenty-seven. Chronic middle-ear suppuration for four years; small perforation of mem-

brana vibrans and considerable loss of hearing. Acoumeter heard at 3 ft. Three months later, after cleansing treatment and cessation of suppuration, acoumeter heard at 30 ft. Improvement has continued over three years.

(3) CASE No. 14244.—A woman, aged fifty-three. Effects of chronic middle-ear suppuration; large, dry, posterior perforation of drum membrane. Acoumeter heard at 12 in. The other ear worthless. The perforation was caused to cicatrise over by aid of paper dressings. Six weeks later acoumeter heard at 8 ft. Improvement has continued.

(4) CASE No. 13000.—A woman, aged twenty, who had been rejected in a civil service examination. Effects of chronic middle-ear suppuration. Adhesion of malleus handle to promontory. Perforation of drum head had already closed. Watch heard at 5 in.; the other ear worthless. Two and a half months later, after forcible catheterisation and relaxation of the bands of adhesion, watch heard at 17 in., and applicant passed a successful civil service examination. Improvement retained.

(5) CASE No. 13070.—A doctor, aged forty-five. Long-standing suppuration and large perforation in membrana vibrans. Acoumeter heard at 10 in. One week later, after cleansing treatment and cessation of suppuration, the perforation was closed with paper dressings; acoumeter heard at 12 ft.

(6) CASE No. 14207.—A woman, aged twenty-four. Suppuration since childhood; total loss of the drum membrane and the three ossicles. Watch heard at 1 in. Other ear of little use. One week later, after cleansing treatment and cessation of suppuration, tympanic ballast was adjusted, watch heard at 36 in. Improvement continues over three years.

(7) CASE No. 12077.—A woman, aged twenty-seven. Suppuration since childhood; loss of drum head and cicatricial attachment of malleus to promontory; early impairment of hearing. Acoumeter heard at 12 in. in right ear. Left ear absolutely deaf. Cleansing treatment and cessation of suppuration. Acoumeter heard at 4 in. Tympanic ballast then adjusted, and acoumeter heard at 8 ft. Ballast caused return of suppuration. A mastoid antrectomy was performed in order to allow the use of the tympanic ballast. After convalescence acoumeter heard at 13 in. Ballast adjusted, acoumeter then heard at 9 ft. Watch heard at 2 in. Condition remains the same. Functional tests without tympanic ballast: Tone perception, high limit 16,800 single vibrations (Edelmann-Galton). Tone perception, low limit fork 1024 single

vibrations. Bone conduction 0. With tympanic ballast in place: Tone perception, high limit 39,400 single vibrations; low limit, fork, 128 single vibrations. Bone conduction, fork, 512 single vibrations heard on mastoid. A tone gap existed for a time, fork 2028 double vibrations not heard by air conduction while other forks were heard.

(8) CASE No. 14478.—A man, aged seventy-five. Chronic middle-ear suppuration of many years' duration with poor hearing. Watch heard at 4 in. My modified radical mastoid operation was performed. Cessation of suppuration and watch heard at 10 in.

(9) CASE No. 13038.—A woman, aged twenty-four. Suppuration since infancy; loss of all tympanic contents; tympanic caries. Watch heard at contact. Radical (Schwartz-Stacke) mastoid operation performed. Convalescence complete in three weeks without skin-grafts. Cessation of suppuration and watch heard at 10 in. The patient has retained the improvement now for four years.

(10) CASE No. 14229.—A man, aged sixty-seven. Stapes fixation in the second stage. Deafness commenced eight years ago; hearing has been very bad for three years; this condition was possibly aggravated by business failure. Hearing variable. Drum membrane whitish and opaque. Position, contour, and light reflex normal; malleus movable. Acoumeter heard, right ear at 4 in., left ear at 3 in. Loud conversation heard in right ear at 6 in., left ear at 32 in. Watch not heard in either ear. Bone conduction much diminished. Fork, 128 single vibrations; low limit for tone perception by bone. Fork, 256 single vibrations not heard by air. High notes well heard. Treatment by general hygiene and regulation of blood-supply of the middle ear. Six months later, acoumeter heard in right ear at 7 ft., watch at 20 in.; in left ear, acoumeter at $4\frac{1}{2}$ ft., watch not heard at all. Improvement has continued now for a period of four years.

(11) CASE No. 13083.—A man, aged forty-seven, had noted deficiency in hearing for eighteen years. Drum heads good colour, fair contour and position, light reflex very small. Nares partially occluded by hypertrophies and irregularities. Fossæ of Rosemüller partially closed by adhesions. Tubal mouths slightly obstructed by thickened mucosa. Watch heard in right ear at 15 in.; in left ear at 4 in. Astringents and irritants to naso-pharynx. Three years later watch heard at 48 in. in left ear and at 84 in. in right ear. Improvement maintained.

(12) CASE No. 14528.—A man, prematurely old at forty-seven.

First noted impaired hearing thirty-four years ago; losing ground ever since in spite of much treatment. Has not heard watch in right ear for twenty-one years, and in left twenty-five years. Flat, opaque, retracted drum membranes; no light reflex; rigid. Nares hypertrophic; inflation by Politzer's method or catheterisation impossible. By air conduction, right ear, low-tone limit fork 1024 single vibrations; high-tone limit fork 2048 single vibrations. Left ear, low limit 512 single vibrations; high limit 4096 single vibrations. Bone conduction decreased. Right ear, low-tone limit by bone conduction 1024 single vibrations; high-limit fork 8192 single vibrations. Left ear, low limit by bone, fork, 1024 single vibrations; high limit 8192 single vibrations. Very loud voice heard at 1 ft. in right ear, left ear at 8 in. Bougies, local astringents, and stimulation. Portions of lower turbinates removed. Eight months later, low-tone limit in left ear, fork, 256 single vibrations; right ear, fork, 268 single vibrations. High-tone limit 40,000 single vibrations in both ears. Acoumeter heard in right ear at 15 in., in left at 27 in. Watch heard, light contact, on both ears. Loud conversation heard in right ear at $5\frac{1}{2}$ ft.; left ear at 4 ft. Eustachian tubes patulous. Appearance of drum membrane much improved in every respect; good light reflex, colour, position and surface, still somewhat opaque.

(13) CASE No. 14177.—A woman, aged thirty-eight. Has undergone much injudicious treatment. Eustachian tubes used to be closed, now cannot close. Diminished hearing began fifteen years ago. Membrana tympani thin, flaccid, readily movable. Acoumeter heard at 20 in. in right ear. Treated by rest, stimulation, and collodion splints. After six months, acoumeter heard at $4\frac{1}{2}$ ft.; watch at $2\frac{1}{4}$ in. Improved function of Eustachian tube.

(14) CASE No. —.—A man, aged forty-three. For several years hearing has been impaired; drum head retracted, good colour, contour and reflex. Does not move on inflation. Watch heard at $1\frac{1}{2}$ in.; after inflation heard at 24 in. Treatment, inflation and pharyngeal astringents. One month later, watch heard at 18 ft.

(15) CASE No. 14696.—A man, aged twenty-seven. Impaired hearing for a number of years; much deafness in family. Drum membranes slightly congested along malleus handle and periphery, and depressed, small, light reflexes; inflation difficult. Nasal engorgement. Left ear, watch heard at 5 in.; right ear, watch heard at 9 in. Bone conduction slightly prolonged. Low notes well heard. High limit, left ear, 39,000 single vibrations (Edelmann-

Galton); right ear, 44,000 single vibrations. Treated by inflation, removal of part of lower turbinates and astringents. Three days later watch heard at 12 ft.; left ear at 10 in. Improvement maintained.

(16) CASE No. 13012.—A man, aged sixty-seven. Some difficulty in hearing for a number of years. Membrane very thick and white, with thinner areas. Large light reflexes. Inflation slow. Acoumeter heard in right ear at 25 in.; in left ear at 7 in. High-tone limit, left ear, 29,000 single vibrations (Edelmann-Galton). Right ear, 20,000 single vibrations. Right ear, low-tone limit, 102 single vibrations. Treatment, astringent to nasopharynx and aural stimulation. Two weeks later acoumeter heard in right ear at 5 ft., left ear at 14 ft.

(17) CASE No. 14649.—A man, aged fifty-eight. Extremely deaf for two years; hearing difficult many years. Thick, flat, contracted drum heads; no light reflexes; Eustachian tubes fairly patulous. Hears nothing by bone conduction. Cannot hear his own voice or a slap on the cheek. Hears very loud noise close to his ear. Treated by nasal counter-irritation and tympanic stimulation. After several treatments acoumeter heard in right ear at 2 in., left ear at 5 in. High-tone limit, right ear, 24,000 single vibrations (Edelmann-Galton); left ear, 22,000 single vibrations. Low limit, left ear, fork 250 single vibrations; right ear, fork 1096 single vibrations. Eight months later, ordinary voice heard by air at 4 ft. Low-tone limit, fork 128 single vibrations, by air in both ears.

(18) CASE No. 14160.—A woman, aged fifty. Hearing has been defective twenty-five years. Partial nasal obstruction. Drum head depressed, very thin, transparent and lax. Inflation not perfect; watch not heard. Right ear, the better ear, acoumeter heard at 5 ft. Low-tone limit, 256 single vibrations. Treated by nasal astringents, removal of part of lower turbinates and aural stimulation. Fifteen months later watch heard at 36 in. Low-tone limit, fork 113 single vibrations. High limit 43,000 single vibrations (Edelmann-Galton).

(19) CASE No. 14128.—A man, aged forty-five. Impaired hearing many years. Right ear absolutely deaf; left ear, relaxed drum membrane. Patulous Eustachian tubes. Acoumeter heard at 7 in. Treatment, paper splints and collodion. Six months later left ear heard watch at $1\frac{1}{2}$ in.; acoumeter at 12 ft. Resiliency of drum membrane restored. Improvement maintained.

(20) CASE No. 12099.—A woman, aged thirty-nine. Had long

noted trouble in hearing. Right ear, the best ear. A large part of the drum membrane calcified. The tube not perfectly patulous. Acoumeter heard at 2 in. Treated by inflation, astringent to nasopharynx and tympanic stimulation. One month later, right ear, watch heard at 18 in. Mobility and elasticity of the sound-conducting mechanism much improved.

(21) CASE No. 14179.—A man, aged forty-one. Has been a little deaf for a number of years. Left ear shows a somewhat depressed grey membrane with irregularly-depressed surface after inflation, indicating bands of adhesions running to the inner tympanic wall. No history or evidence of suppuration. Tympanic inflation difficult. Acoumeter heard at 3 in. Treatment, inflation and tubal astringents. Four months later, acoumeter heard at 4 ft. in left ear. Adhesions appear to be entirely relaxed.

(22) CASE No. 14177.—A woman, aged thirty-eight. Noted impairment in hearing fifteen years ago. Previously tubal stricture, much injudicious treatment; now permanently open tubes and abnormally movable left drum membrane and mallens, loss of elasticity of membrane and extreme laxity of malleolar ligaments. Bone-conduction much increased, low notes deficient, high notes well heard. Left ear, acoumeter heard at 25 in. Treatment by collodion splints, rest and irritation of pharyngeal mouth of tube. Five months later watch heard in left ear at $4\frac{3}{4}$ in., acoumeter at 10 ft.

(23) CASE No. 14861.—A woman, aged thirty-five. Some difficulty in hearing for at least two years. Tympanic membrane fairly normal in appearance. Mallens immovable. Right ear, watch heard at 17 in.; left ear, at 3 in. High tone limit, left ear, 40,000 single vibrations (Edelmann-Galton); right ear, 48,000 single vibrations. Gille positive, low limit left ear, fork, 134 single vibrations; right ear, 174 single vibrations. Bone-conduction, normal duration. Treated by tympanic and tubal stimulation. Six weeks later, left ear, watch heard at 9 in.; right ear at 21 in. High tone limit, right ear, 85,000 single vibrations; left ear 92,000 single vibrations. Low limit, 128 single vibrations both ears.

(24) CASE No. —.—A boy, aged thirteen. Always had slightly defective hearing. Watch heard at 20 in. in both ears. Mastoiditis and operation treated with my modified blood-clot dressing. After convalescence from the operation the ear operated on for mastoiditis; heard the watch at 12 ft.

Summary.—We have seen that all forms of middle-ear

deafness except the congenital cases are amenable to treatment, and that the amount of improvement justifies the effort expended.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE—LARYNGOLOGICAL SECTION.

Fourth Ordinary Meeting, February 7, 1908.

J. B. BALL, M.D., *President, in the Chair.*

Abstract of Proceedings, by DR. DAN MCKENZIE.

SIR FELIX SEMON read a list of the names of British laryngologists who had signified their intention of being present at the International Congress of Oto-Laryngology at Vienna in April-May of this year, and drew attention to the fact that up to the present no single British representative had intimated a purpose of reading a paper on any subject connected with their work.

The following cases and specimens were shown :

A CASE OF MULTIPLE HEREDITARY DEVELOPMENTAL ANGEIOMATA (TELANGIECTASES) OF THE SKIN AND MUCOUS MEMBRANES ASSOCIATED WITH RECURRING HÆMORRHAGES.

BY DR. PARKES WEBER (introduced by SIR FELIX SEMON.)

This case was fully described in the *Lancet*, July 20, 1907, and was shown at the meeting of the Clinical Section of the Royal Society of Medicine on Friday, January 10, 1908. Special points of interest, apart from the changes on the external integument, were that there were small angiomas over the tongue, the mucous membrane of the mouth, inside both nostrils, on the posterior wall of the pharynx, and on the anterior surfaces of the glottis, and that during the last six years the patient had been subject to very frequent epistaxis.

A CASE OF MULTIPLE TELANGIECTASES.

(Shown at the meeting of the Clinical Section on January 10, 1908.)

BY SIR FELIX SEMON (for Dr. SIDNEY PHILLIPS).

The patient was a married woman, aged fifty-six, who had since childhood suffered from bleeding from the mouth, and more lately from the nose. Her father suffered from violent epistaxis and bleeding from the tongue. Her sister died from hæmorrhage of the gums. The patient had one daughter (also shown) who had vascular elevations on the tongue, and had recently had epistaxis. Near the tip of the tongue was a small, red, elevated patch, which at times spurted out blood freely; there was a smaller one on the surface of the tongue, and one speck behind an alveolus of the upper jaw, which also bled freely at times. In the right nostril there was a much enlarged vessel seen in the "locus Kiesselbachii." On the left side some smaller red specks in the corresponding part of the septum. No lesions in the naso-pharynx or larynx.

SKETCHES OF THREE PATIENTS WITH MULTIPLE TELANGIECTASES OF THE SKIN AND MUCOUS MEMBRANES OF THE NOSE AND MOUTH.

BY DR. BROWN KELLY.

SIR FELIX SEMON had arranged the exhibition of these cases because he feared that general medicine "had wiped the eye" of laryngology. He had looked into many text-books of laryngology and rhinology and had failed to find any allusion to this condition in which, as Osler had shown, epistaxis was the most common symptom. It was interesting to see that the "locus Kiesselbachii" was the spot in which the hæmorrhage occurred in cases of telangiectasis just as it was in ordinary epistaxis, so that these ordinary cases might be regarded as representing the slightest degree of a general tendency to telangiectasis.

Mr. LAMBERT LACK said that in his book he had alluded to telangiectasis as a cause of epistaxis.

SPECIMEN AND MICROSCOPIC SECTIONS OF TUMOUR OF RIGHT LOBE OF THYROID GLAND.

BY DR. DONELAN.

[From case shown at last meeting. The same title was preserved without prejudice to views as to œsophageal origin of disease.]

Patient, man, aged fifty. Seen December 5, 1907; in-patient. Had several lipomata about neck, and latterly swelling at right

side which he thought to be similar. Dysphagia and aphonia occurred somewhat suddenly five weeks and three weeks previously respectively. History of syphilis; iritis. Mercurial inunctions: iodides. Diminution of swelling, leaving central hardness. Improvement in sight, voice, and swallowing. Out-patient. Attended meeting on January 3. Readmitted January 7; increasing dysphagia; only liquids. No bougie passed. Died suddenly January 9. Asphyxia from hæmorrhage into trachea.

Autopsy allowed only within limits of neck. Specimen showed the larynx with portions of trachea and œsophagus. Dense fibrous growth in site of right thyroid lobe; extension between larynx and trachea and œsophagus, almost surrounding latter; the œsophageal mucous membrane apparently unaffected. Below right postero-inferior border of cricoid a cavity with necrosed tissue and blood, and a passage leading into upper end of trachea. Vagus nerve extensively infiltrated. No enlarged lymphatic glands found in area examined. The sections showed a squamous-celled carcinoma.

The PRESIDENT said that several members last time had expressed the opinion that the goitre was malignant and that the recurrent paralysis was due to the implication of the nerve in the growth.

INTRA-NASAL HYPERTROPHY, ESPECIALLY OF MIDDLE TURBINALS, WITH HEADACHES AND CONTINUAL SWEATING, ALMOST ENTIRELY LIMITED TO NOSE, IN WOMAN, AGED EIGHTEEN.

By DR. DONELAN.

Mr. DAVIS suggested that the localised sweating was due to the pressure of the enlarged middle turbinals upon the nasal nerves which supplied vaso-motor filament to the part.

CASE OF SPECIFIC PACHYDERMIA?

By DR. STCLAIR THOMSON.

A man, aged thirty-five, with rough voice for three years. More or less symmetrical thickening over each processus vocalis, with central depression and (?) ulceration. Provisional diagnosis: *specific pachydermia*.

Dr. FORBES had seen two cases in early life which the case exhibited recalled to his memory. In both the appearances were similar to this, there being, in addition to the general pachydermia, a dense mass in the interarytenoid space. In the one case there was a definite history of congenital syphilis, in the other, a child aged two years and nine months, such a history was entirely absent.

Mr. CLAYTON FOX said the movement of the cords was very limited. There was very imperfect adduction, and on abduction during deep inspiration only a very slight movement outwards from the cadaveric position took place. He agreed with the exhibitor that the case was one of syphilis of the larynx.

Dr. STCLAIR THOMSON said he had endeavoured to exclude tubercle from the diagnosis. The condition had proved very resistant to treatment, and some stridor on breathing had recently become manifest. He asked the Fellows whether they had perceived any ulceration on the vocal processes.

Dr. SCANES SPICER said he did not think there was any sign of ulceration.

CASE OF MUCOCELE OF THE RIGHT FRONTAL SINUS.

BY DR. STCLAIR THOMSON.

A woman, aged twenty, with proptosis and displacement of the right eyelid, dependent on distension of the frontal sinus. Three years' history. No pus discovered in the nose. Apparently a case of *mucocoele of the right frontal sinus*. The case was shown preliminary to operation.

Dr. STCLAIR THOMSON said that he wished to make a correction in the description of the case. Pus was present in the nose, but only at long intervals, and during the period when pus was absent the patient suffered very much from headaches. Regarding the treatment of sinus suppuration he wished to ask whether it was advisable to operate on the frontal sinus or on the maxillary antrum first. If the frontal sinus were opened and drained first of all, the antrum might infect the wound; and if, on the other hand, the antrum were first dealt with, the packing introduced would tend to block up the drainage from the frontal sinus.

Dr. TILLEY said that in mucocoele painlessness was the characteristic sign of the distension, and on transillumination through the floor the distended sinus was brighter than the healthy sinus. In this case the anterior wall was quite hard, and when the finger was introduced under the roof of the orbit a nodular thickening was perceptible under the ridge. He thought, therefore, that the case was one in which there was suppuration of the ethmoidal cells under the frontal sinus, with blocking of their duct. In reply to the question asked as to the order of operating upon these sinuses, he said his rule was to open both at the same time. In any case, as he was not in the habit of packing the antrum, he never ran any risk of blocking the frontal sinus.

Mr. LAMBERT LACK recommended that an incision be made through the orbit into the swelling. He also thought the case was ethmoidal. It was probably a mucocoele which, perhaps, had become septic. He had operated on several cases of this kind, and all, with one exception, were ethmoidal and not frontal. The cavity opened up in this manner should be freely drained into the nose.

Dr. HILL said there was certainly some absorption of the orbital roof and the eye was displaced out and not down. The nodular thickening or "knob" felt by Dr. Tilley was, the speaker suggested, the trochlea. He further drew attention to a feeling of pulsation in the neighbourhood of

this "knob," and said that if the operation disclosed a state of matters different both from mucocele and suppuration he would not be surprised.

Mr. STUART-LOW, with reference to the question of the order of operating, said his practice was that if polypi were present in the nose he began at the top of the house and came down; if, however, the nose was free from polypi, he operated on the antrum first of all.

Dr. BROWN-KELLY had operated on a case similar to this one and found that the dura mater was exposed.

Mr. HAROLD BARWELL said his habit was to operate upon both cavities at the one operation, but when this was not done he opened the antrum first, and as no packing was inserted there was no risk of interfering with the drainage of the frontal sinus.

Mr. FITZGERALD POWELL, in cases of frontal sinus and antrum suppuration, opened the ethmoidal cells freely in order to give the sinuses a chance of clearing up without further operation.

Dr. STCLAIR THOMSON was of opinion that there was a defect in the orbital roof. He thought the case one of suppurating mucocele. Respecting the order of operation he said that there were certainly many occasions when it was inexpedient to operate on both sinuses at one sitting. He could recall one case where the operation on the antrum had changed a quiet suppuration in the frontal sinus into an osteomyelitis, which proved fatal.

RADIOGRAPH TO SHOW HOW THE ORBITO-ETHMOIDAL, AS WELL AS THE FRONTAL, CELLS CAN BE DEFINED BEFORE OPERATION.

BY DR. STCLAIR THOMSON.

The radiographs shown demonstrated the presence of "galleries" running under the floor of the frontal sinus, and were very useful before operating. The plate was placed in front of, and the X-ray tube behind, the head.

Dr. WATSON WILLIAMS said that the tube should not be placed immediately behind the occipital protuberance, but rather above it.

MICROSCOPIC SECTIONS ILLUSTRATING THE PATHOGENESIS OF SOME FORMS OF NASAL POLYPI.

BY DR. WATSON WILLIAMS.

The slides showed:

(1) A minute *localised* area of œdematous mucosa projecting from the surface of the mucous membrane and having a distinct pedicle.

(2) A group of lymphatic vessels surrounded by a localised area of œdematous connective tissue. The lymphatic vessels are choked with Gram-negative cocci. Thionin stain.

Drawings of same under higher power ($\frac{1}{12}$ immersion) and photo-micrograph.

It is suggested that the cocci choking the lymphatic vessels lead to œdematous infiltration of the connective tissue in the corresponding areas, such œdematous connective tissue being the initial stage in the formation of a mucous polyp.

Dr. WATSON WILLIAMS also demonstrated a universal laryngeal forceps for use by the direct and indirect methods.

CASE OF UNILATERAL PARALYSIS OF THE TONGUE.

BY DR. JOHNSON HORNE.

A woman, aged forty-one, a music teacher, with unilateral paralysis of the tongue. Duration five months. Onset sudden, had previously experienced severe pain, or rather tightness, in the occipital region on the left side, also pain over the left articulation of the jaw; with some inequality of movement of the same. Loss of taste had been experienced on the left side of the tongue. Patient associated onset of lingual condition with an injection into the gums for the extraction of stumps (one right lower and two left upper) prior to the making of a new dental plate, but the condition did not develop until three days after the extractions. Patient has been under electrical treatment at a general hospital for two months, discontinued on January 15; condition has remained the same in spite of treatment. The case was shown with a view of eliciting opinions on its nature and treatment.

Mr. DAVIS said that the paralysis was probably functional and the atrophy the result simply of disease.

Mr. STEWARD remarked that the case was looked upon with some suspicion at first, but there was present a definite reaction of degeneration in the muscles of the affected side, and as time had gone on the wasting had become more marked and very obvious contracture had appeared.

Dr. DAN MCKENZIE said that while there might possibly be an organic lesion as the basis of the paralysis, he agreed with Mr. Davis in thinking that an hysterical element was not wanting, because when the tongue was lying in the floor of the mouth it was pushed over to the right side, and there was also left hemianæsthesia of the organ.

Mr. CLAYTON FOX said the patient complained of severe pain along the distribution of the great occipital nerve, and he suggested that this feature, coupled with the paralysis of the muscles supplied by the hypoglossal nerve, might be due to some lesion commanding both of those trunks, such as an aneurysm of the vertebral artery.

Mr. DAVIS said that he ascribed little importance to the reaction of degeneration since it was found in muscles which were undergoing atrophy from any cause.

Dr. JOHNSON HORNE, in reply, said that he suspected there was some condition other than that of hysteria responsible for the paralysis. He would show the case again at some future date.

A CASE OF NECROSIS OF THE ARYTENOID CARTILAGE.

BY MR. HAROLD BARWELL.

The patient, a police-sergeant, in November, 1906, complained of hoarseness and dyspnœa on exertion. No sign of phthisis could be detected, and no history pointing to syphilis could be obtained. The right arytenoid was swollen and fixed, the right band so swollen as to hide the cord, and from the right side of the inter-arytenoid region a white mass projected into the glottis, and suggested, by its appearance, a necrosed piece of arytenoid cartilage. Mercury and potassium iodide were given by the mouth for a few weeks, but were then discontinued, as they did not suit the patient, and had had no effect on the local condition. This had remained practically unchanged up to the present time; the voice had improved, but the dyspnœa was often troublesome, though it did not seem ever to be of dangerous severity. Suggestions for treatment were solicited.

A CASE OF SARCOMA OF THE NOSE AFTER OPERATION.

(With microscopic specimen by Dr. WYATT WINGRAVE.)

BY MR. CHICHELE NOURSE.

A man, aged forty-four; left nasal obstruction two months; epiphora of left eye. Eleven months before he had a severe attack of epistaxis, followed, a week later, by pain under left eye lasting five weeks. Left eyeball pushed slightly upwards; some proptosis. Left nostril blocked by a fleshy growth; septum pushed to right. Left antrum opaque on transillumination. Removal of specimen with snare followed by free hæmorrhage. Report: Malignant growth.

Operation, November 6, 1907.—Ligature of external carotid. Second part five days later. Laryngotomy; formation of flap, as if for removal of superior maxilla; large opening made in anterior wall of antrum (filled with thick mucus, inner wall pushed outwards). Resection of nasal process of superior maxilla, part of nasal bone and lacrymal bone, and inferior turbinal body. Free exposure of nasal cavity.

Tumour, springing from ethmoid, removed with bony attachment. Middle turbinal flattened out against septum. Closure of wound; rapid healing. Later, mucous polypi removed; frontal sinus, containing very thick mucus, washed out; an ethmoidal cell

in same state broken down. (Edema of lower eyelid persisted for two or three weeks then subsided.

Dr. JOHNSON HORNE said that after a somewhat cursory examination of the microscopic specimen, he had considerable doubt as to whether or not the tumour was sarcomatous.

A CASE OF EPITHELIOMA OF TONGUE AND FAUCES AFTER OPERATIONS,
SHOWING RECURRENCE IN PHARYNX IN A MAN, AGED FORTY-
EIGHT.

(Microscopic specimen by Dr. WYATT WINGRAVE.)

BY MR. CHICHELE NOURSE.

A CASE OF COMPLETE CLOSURE OF THE ANTERIOR NARES, WITH
PARTIAL AND PROGRESSIVE ATRESIA OF THE NASO-PHARYNX AND
ORO-PHARYNX.

BY MR. STUART-LOW.

The patient, an unmarried woman, aged thirty-nine, has suffered from, and been under medical and surgical treatment for, nose and throat disease for thirty-one years. She is a native of Cumberland, where she has resided all her life. Two cousins on her mother's side died of phthisis. Her father and mother lived to seventy-five and eighty-one respectively. There were thirteen children in the family. The first four were healthy, and were now strong and well, but after the father's return from Russia, where he had resided for seven years, there were three still-births, and six children were born, all of which died in infancy at ages ranging from six to eighteen months. The patient was the last of all the family.

Mr. CRESSWELL BABER said he thought the cicatrisation was syphilitic.

SIR FELIX SEMON said that Dr. Lieven, from Aix-la-Chapelle, had expressed his certainty that the case was syphilitic.

Dr. STCLAIR THOMSON observed that rhinologists would be interested to note that despite the absolute closure of the nasal passages the patient did not suffer from sore throat, laryngitis, or deafness.

Mr. STUART-LOW said that there was probably a blending of tubercular and syphilitic disease present, for both the Calmette ophthalmoreaction and the tuberculin test had been positive. An interesting phenomenon had occurred when testing the case. The conjunctival reaction had not been more than moderate, and after the congestion had almost subsided the tuberculin was injected. In addition to the smart reaction of the patient, both locally—on the inner aspect of the lip where there was a lupous patch—and generally, the eye which had been exposed

to the Calmette test exhibited a second reaction much more violent than the first.

CASES AFTER THE RADICAL MAXILLARY ANTRUM OPERATION EXEMPLIFYING SIMPLIFICATION OF THE AFTER-TREATMENT.

BY MR. STUART-LOW.

The operation is so performed that all syringing can be dispensed with, the patient being easily able with the tongue and lips to force fluids from the mouth through the antrum into and out of the nose. In this way these cavities can be frequently irrigated, and so maintained aseptic.

The rapid regeneration of the mucous lining of the antrum is greatly facilitated by plugging the cavity with oiled silk for the first forty-eight hours after operation.

The PRESIDENT could see no advantage in Mr. Stuart-Low's plan of leaving the opening patent in the mouth, and as to the regeneration of mucous membrane being hastened by the application for a few hours of oiled silk he was extremely sceptical.

Dr. TILLEY looked upon the hole in the mouth as a complication instead of a simplification of the operation. The fistulous opening was a source of great annoyance to patients, and he had found the closing of such an opening a matter of great difficulty. Consequently he always sutured the buccal wound at the operation. He further objected to Mr. Stuart-Low's use of the word "aseptic" in this connection. Surely the squirting of fluid into the antrum from a septic cavity like the mouth was not a method of maintaining asepsis. He agreed with the President that the application of oiled silk could not hasten the growth of epithelium over the granulations which form as the result of removing the diseased mucous membrane.

Mr. MARK HOVELL considered the fistulous opening in the mouth a great disadvantage.

Dr. JOHNSON HORNE said that all were well acquainted with this method, and so were many of their patients. But at the same time he protested against the idea that there could be any hard and fast rule in the after-treatment of antrum operations. And he drew attention to the fact that Mr. Stuart-Low's case looked very well.

Mr. FITZGERALD POWELL remarked upon the constant changes of opinion which characterised the history of the antrum operation. He still adhered to the drainage through the nose or through a tooth-socket, and held that it was impossible to remove all the mucous membrane in the cavity.

Dr. M'BRIDE condemned washing out the cavity through the mouth. He asked how long the patient had been ill before the operation, and how long was it since the operation had taken place?

Mr. CLAYTON FOX said that a "regeneration of mucous membrane" after its removal was a physical impossibility. The mucous membrane was not regenerated. What took place was simply the extension of epithelium over a granulating surface—a cicatrization. Oiled silk could only act as a foreign body.

MR. STUART-LOW, in reply to Dr. Tilley, said that the after-treatment was simplified in that no syringing was necessary. He had operated on some half-a-dozen cases in this way and had hoped to exhibit them at the meeting, and in none of these cases was there the slightest trouble in the after-treatment. He saw no reason for stitching up. As for the "septic" mouth, it was a bogey, unless the patient had carious teeth or suppurating foci in the mouth. In reply to the other speakers he begged to say that the mucous membrane was regenerated in a week. The oiled silk might act as a foreign body, shutting in the serum, but this was an advantage, for serum was a powerful healing agent.

A LARYNGEAL CASE FOR DIAGNOSIS.

By DR. ANDREW WYLIE.

Patient, female, aged forty-three, complaining of hoarseness of thirteen months' duration, also pain in swallowing and pain in left ear. Patient was in best of health; no loss of weight; no specific history; no stricture of the œsophagus; slight glandular swelling in the neck. The left arytaenoid was greatly swollen and œdematous, hiding nearly the whole of the left vocal cord from view. No improvement with anti-syphilitic remedies.

CASE OF EARLY EPITHELIOMA OF THE LEFT VOCAL CORD.

By MR. HERBERT TILLEY.

A male, aged fifty-six, with appearances indicating early epithelioma of the left vocal cord. Iodide of potash was given on two occasions, but the symptoms of iodism were so marked and distressing that its use was discontinued.

Dr. TILLEY also showed a skiagram demonstrating the frontal sinuses and the mastoid cells

CASE OF GIRL WITH A GENUINE BARITONE VOICE.

By MR. CYRIL HORSFORD.

A girl, aged seventeen, with "a *genuine* baritone voice," who had been appearing at various music halls during last nine months as such. Voice discovered suddenly about two years ago. Larynx somewhat larger than normal. Vocal cords markedly red and swollen, and showing "nodes."

Is the voice the result of an unusual method of voice production, or is it the result of the laryngitis, or can the larynx be described as that of a "male larynx?"

Mr. DONELAN asked what evidence had Mr. Horsford as to the sex of the patient.

Dr. JOBSON HORNE said Mr. Horsford had asked three very proper questions, and for his own part he had no hesitation in replying to them all in the negative. The larynx was neither a female nor a male larynx. It was a larynx *sui generis*.

Dr. AITKEN said that the cords were longer than those of the female larynx and approximated to the male type. When the girl sang the sound was one of a reed in a small chamber. He thought that the typical male larynx was larger than this one.

Sir FELIX SEMON said that to call this larynx a larynx *sui generis* was to call it nothing at all. He asked Dr. Jobson Horne whether he thought there was any laryngitis present.

Dr. JOBSON HORNE said in his opinion there was none.

Sir FELIX SEMON held that there was distinct evidence of laryngitis. In the male larynx the vocal cords were longer and broader than in this girl's, and the pomum Adami was more prominent. He asked the exhibitor if there were any signs of hermaphroditism in the case. As she was singing he had closed his eyes, and the impression he had formed was that the voice was neither a baritone nor yet a contralto. Hence, perhaps after all he might have to admit that the larynx was a larynx *sui generis*.

Mr. C. HORSFORD related the previous history of the case. The voice "broke" at the age of fourteen. Before that event the girl possessed a "boy's voice." While it was breaking she found she could sing both with a deep and with a treble voice. Eventually she cultivated the deep voice and the high voice disappeared. At present the voice was an octave lower than that of a contralto singer. With regard to the question of sex, the mammae were of the usual female type and the girl had menstruated. There was undoubted laryngitis, for when she first came to him the cords could not be separated in their anterior half. During the last eight weeks, as a result of treatment, the larynx had considerably improved, but without any loss of the baritone quality.

A CASE FROM WHICH AN ENDOTHELIOMA HAD BEEN REMOVED FROM THE HARD PALATE.

By Dr. DAN MCKENZIE.

The patient, a young woman, had been aware of a lump in the roof of her mouth for many years; recently it had increased in size. The tumour was of the size and shape of an almond; it lay in a periosteal capsule, and had hollowed out the bone to a slight extent.

The specimen prepared by Dr. Wyatt Wingrave was also exhibited.

CASE OF MEDIAN CERVICAL FISTULA.

(Shown at the December meeting of the Section.)

By Dr. DUNDAS GRANT AND Dr. DAN MCKENZIE.

Patient had been operated upon by Dr. Dundas Grant.

A section of the fistulous duct was also on view.

Dr. DAN McKENZIE, in reply to a question, said that Dr. Dundas Grant had made an elliptical incision encircling the orifice of the fistulous opening and had dissected the duct up to and behind the hyoid bone, where it seemed to become incorporated in the periosteum. Here the duct was accidentally severed, and it was impossible to trace it upwards towards the base of the tongue. In the hope of obliterating what was left of the tract Dr. Grant cauterised the lumen with the galvano-cautery. Time alone would show whether this end had been attained or not.

Dr. KELSON showed a case of *ulceration of the nose*; Dr. DUNDAS GRANT a case of *epithelioma of the fauces*; and Dr. HILL one of *tuberculosis of the larynx with perichondritis*.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Thirteenth Annual Session, held at New York, May 30, 31, and June 1, 1907.

WENDELL C. PHILLIPS, M.D., *of New York, President, in the Chair.*

(Continued from page 120.)

Modern Surgery of the Tonsil.

Dr. THOMAS J. GALLAHER, of Denver, Colo., said in this paper that operations upon the tonsil might be divided into the simple and the radical types. The former included the splitting of the crypts by the knife or galvano-cautery, reduction of the tonsillar tissue by the galvano-cautery, and tonsillotomy. The latter consisted in the complete exenteration of the sinus tonsillaris. The importance of complete operation was strongly emphasised. The radical operation which he advocated was what might be called the dissection and snare operation, which is always applicable and thorough. It required simple and few instruments, but necessitated a keen appreciation of the anatomy. By this operation the tonsil was removed complete with its capsule intact. After the operation the sinus tonsillaris should be carefully inspected to see if any fragments of the tonsil remain, especially in the upper portion. If any were found they should be removed. The plica-supra-tonsillaris should be cut through at the anterior and posterior cornua and not through the semilunar margin. Laceration of the constrictor and wounding of the larger vessels external to it would

produce very troublesome hæmorrhage. Cutting the palato-glossi or palato-pharyngeal muscles gave constrictions of the palate. Contractions were more liable to be produced by laceration of the posterior pillar. Incomplete severing of the marginal attachments permitted the surrounding tissue, especially above, to be drawn into the snare and wounded. Insufficient loosening of the capsule from the constrictor should be avoided. Especial emphasis was placed upon the importance of the careful dissection of the velar lobe from its attachments. In a record of over 125 cases in the adult operated upon by this method, the only bleeding was that incidental to the dissection, and in each instance this ceased spontaneously after enucleation of the tonsil.

Dr. WILLIAM L. BALLENGER, of Chicago, held that complete removal of the tonsil would obviate any further trouble for the patient, except such as that mentioned by Dr. Myles. He thought there had been a needless invention of instruments and an unnecessary expenditure of money for instruments for the removal of tonsils. With a pocket-knife and good grasping forceps he could remove any tonsil in adults with its capsule intact in a very short time. An ordinary sharp scalpel and forceps of the vulsellum type were the only instruments he used in removing tonsils from adults. He operated under local anesthesia by the injection method mentioned by Dr. Gallaher. With a few deft movements of the knife the tonsil could be completely removed, with its capsule intact, with the best healing wound it was possible to have. He had found that hæmorrhage was in proportion to the wounding of vessels in the muscles of the pillars. There should be no muscular tissue removed, little hæmorrhage. He described in detail his method of procedure.

Dr. THOMAS J. HARRIS, of New York City, hoped that the papers presented and the discussion thereof would settle the various questions which had long been doubtful concerning the surgery of the tonsil. The subject of the technique could very properly be allowed to rest, but he would be very sorry if the question of conservatism *versus* the radical side were allowed to pass. The question might justly be asked whether the radical operation is always required and whether it will do what it is desired to do.

Dr. JOHN F. BARNHILL, of Indianapolis, Ind., had always rather favoured radicalism in the surgery of the faucial tonsil, with the exception of the class of cases to which Dr. Myles referred as No. 1, in which the tonsil is not embedded. Ninety per cent. of cases in children under five years of age he believed to be of this class.

He had had the opportunity of watching these children as long as ten years after operation with the guillotine, and he had seen no recurrence and no quinsy. The important thing at this early age was the removal of the obstruction to breathing, and in 90 per cent. of such cases the simple operation was all that was necessary. Where the tonsil was embedded, however, the simple operation would not suffice. He had always been satisfied if he could remove all tonsillar tissue beyond the bottom of the crypts.

Dr. GEORGE B. WOOD, of Philadelphia, referring to what Dr. Babbitt called chronic tonsillitis, said that he considered this term a misnomer. The condition was an accumulation of desquamated epithelial cells in the crypts of the tonsils. This mass of cells being retained in the tonsil, crypts became infected and underwent decomposition. The treatment should consist in thoroughly opening up the crypts, as it was not necessary in these cases to completely remove the whole tonsil. In this condition of lacunar retention the tonsil was not necessarily inflamed, though it might be so coincidentally. Dr. Myles's tonsil punch was an excellent instrument for removing either a portion or all of the tonsil, but it could be greatly improved by having the cutting blades sharpened to a knife edge. A sharp cutting instrument was always much less painful than a blunt instrument like the ordinary punch. He urged that the members drop the term "adhesions of the tonsils." With the exception of abscess perforating through the anterior pillar he had never seen adhesions other than those of congenital origin.

Dr. H. W. LOEB, of St. Louis, Mo., said it was not at all uncommon to see cases of tonsillitis of the variety referred to by Dr. Myles as No. 1 give an immense amount of trouble, and to see cases of the variety known as No. 4 give absolutely no symptoms. It was a question whether one should anticipate trouble. The radical removal of the tonsil should depend upon the degree of the symptoms. Where the symptoms were not particularly important, where the patient was not subject to much pain by recurring inflammations, it was best to leave the tonsil. On the contrary, where a very small part of the tonsillar tissue remains, or where the variety No. 4 causes trouble, removal should be undertaken. Tonsils which have been snipped off by the general practitioner have been seen to go down and to give no further trouble. Each operator must be guided by the personal equation, both on his own part and on that of the patient.

Dr. JOHN B. ROBERTS, of Philadelphia, held that the position of

the patient simplified the operation materially, the upright position being that in which it was easiest to reach the tonsil and to control the bleeding. He had frequently operated with the patient in the sitting position, and without general or even local anaesthesia. The sensation to pain in tonsillar tissue was very little developed.

Dr. CLEMENT F. THEISEN, of Albany, N.Y., did not agree with the statement that complete removal of the tonsil would obviate any further trouble. The patient would not have tonsillitis again, but he might have inflammation of the surrounding tissues, which would give almost as much trouble as tonsillitis. He took issue with Dr. Gallaher concerning the tonsillotome, holding that in some cases the tonsil could be practically removed with this instrument. He used the tonsillotome first, then completed the operation with the tonsil punch.

Dr. FRANK B. SPRAGUE, of Providence, R.I., referred to the fact that within the past fifteen years twenty deaths had been reported from chloroform in adenoid and tonsil operations, and urged caution in the use of this anaesthetic. He had found it easy in children to remove the tonsil completely with the guillotine tonsillotome, by placing the opening over the tonsil from behind, pushing back the plica and the pillars. Should there be a second lobe this could be removed by reaching down beneath it and pressing upward and forward, and any remaining pieces could be removed by the Myles or Farlow punch. He had had severe hæmorrhage occur after the fifth day subsequent to operation. He cited a case of primary hæmorrhage in a young woman of eighteen who had formerly had a cyst of the tonsil half an inch in diameter. A few weeks later he had operated for removal of the adenoids and tonsils, clearing away everything but a small tab of tonsillar tissue, which he clipped off with the punch. As he did this the blood spurted out. He placed his finger on the bleeding point, then applied a pad of cotton soaked in glycerite of tannin, allowing this to remain *in situ* for five days. There was no further bleeding and all went well with the case. Removal of the tonsil had been advocated to relieve difficult breathing; he had seen enormous tonsils with very slight interference with breathing. He believed that large tonsils were less obstructive to breathing than adenoids. Almost invariably where there was hypertrophy of the tonsils the adenoids were also enlarged, and removal of tonsils without removal of adenoids was useless.

Professor KILLIAN, of Freiburg, Germany, said that visitors to his clinic would see that he and his associates were not radical.

He gave no general anæsthetic as a rule, and if he did give it, it was only for a moment. He had not found it necessary to employ general anæsthesia, as the operation is not painful and is a very short one. He used the tonsillotome as a rule. It was not necessary to remove all the tonsillar tissue or all the adenoid tissue in the vault of the pharynx. The adenoid tissue has a very important function in the production of saliva and for protection against infectious disease. The tonsils manufacture lymphoid cells and aid in digestion. The function of the tonsil in the naso-pharynx was not established. He believed, however, that it served some purpose. There should be some indication for the radical operation. If a child had tonsillitis every two weeks this should be considered an indication for radical removal; if it had one or two attacks a year it was not necessary to remove the entire tonsil. In the latter case it was only necessary to remove such tissue as was above the normal size of the tonsil. He had observed, in cases where he had operated radically, if the child had a small amount of adenoid tissue this was prone to become inflamed, and it was necessary in all cases to give local treatment. Should the child be unable to breathe through the nose, not only the naso-pharynx but the nose as well should be cleared out.

Dr. CHRISTIAN R. HOLMES, of Cincinnati, asked the readers of the papers to say, in closing the discussion, whether patients complained of pain after the radical operation. He had found that some of them complained of pain for two or three days after the use of the snare. With reference to the question of anticipating trouble, he said it had been his custom, in giving an anæsthetic for the removal of adenoids, to always investigate the tonsils and especially the supra-tonsillar space. He had used chloroform for a number of years, but had at last become afraid of it, and now uses ether or ether in combination with nitrous oxide.

Dr. MYLES, in closing the discussion, said it was taken for granted that when the radical operation was advocated the indications were sufficient to warrant this procedure. He had tried to emphasise in the paper the fact that enlarged cervical glands give positive evidence of tonsillar sepsis. He could not understand why pediatricists had not given more attention to, and kept more careful records with reference to enlargement of these glands. Instances which were formerly attributed to scrofula he believed to be due not to scrofula but to tonsillar sepsis. In general rheumatism, myocarditis, and other affections associated with tonsillitis, if the finger were passed along the borders of the sterno-

cleido-mastoid muscle these glands would be detected. If this evidence of tonsillar infection were always looked for, and if the tonsils in such case were always removed, the visits of the general practitioner would be cut down 20 per cent. He spoke of the proximity of the pneumogastric nerve to the very large inter-mural tonsil, and took issue with Dr. Mosher concerning the matter of the probability of injury to the internal carotid artery, which passes just behind this class of tonsil. The reaction following operation was greater in children than in adults, and was in proportion to the wounding of the peritonsillar tissue. Could the cutting be confined to the tonsillar tissue there would be but little reaction. It was always his practice to leave some part of the sheath in the deeply embedded type of tonsil. The pathology of the crypts and lacunæ was being carefully studied. The detritus in the crypts he believed to be epithelial *débris* rather than food particles.

Dr. GALLAHER, in closing the discussion, emphasised the fact that the tonsil is a superficial lymphatic gland, with direct communication with the lymphatic glands of the neck, and that it might be the seat of the primary infection in tuberculosis. Before condemning the radical operation it would be necessary to understand the physiology of the tonsil better than it is understood at the present time. Hemorrhage should be controlled in operations on the tonsils in accordance with ordinary surgical procedure. The snare was only an incidental part of the operation. With the dissection the operation could be completed with a snare in a second. It was then his custom to blow in some orthoform, and to direct the patient to do this every hour or so. He had done 150 radical operations and had not had a single peritonsillar abscess.

Symposium on Tuberculosis of the Upper Respiratory Tract.

The Etiology of Tuberculosis of the Upper Respiratory Tract.—Dr. GEORGE B. WOOD, of Philadelphia, presented this phase of the subject. The nasal cavities were only rarely infected with the tubercle bacillus, probably because the time necessary for the propagation of this slow-growing organism permits the cilia of the nose and the nasal secretions to remove it from the fossæ. It was also likely that the nasal secretions themselves are directly inhibitory to its growth. Tuberculosis of the pharynx should be considered as practically identical with tuberculosis of its lymphoid tissue. It was doubtful if the stratified squamous pavement

epithelium is ever infected by the tubercle bacillus except through the lymph-follicles, the lateral folds of the pharynx or one of the four tonsils. When the comparative susceptibility of the various parts of the upper respiratory tract to tuberculosis was considered, preference for liability of infection must be given to the tonsillar tissues. The importance of the liability to systemic infection through tuberculosis of the tonsils was emphasised. The possibility of infection of the apices of the pleura, and of the bronchial and mediastinal lymph-glands from the upper respiratory tract, *via* the cervical lymph-chains, had recently engaged considerable attention. While it would seem possible, in some cases, for the pleural apices to be infected by descending tuberculosis of the lymph-glands in the neck, for the tonsillar lesion to reach this distance there must first be broken down and overcome a great many lymph-nodes. Another probable source of systemic infection from local disease of the tonsils, especially from the pharyngeal tonsil, might come from the disintegration or breaking down of the tonsillar tissue and diseased portions being swallowed, and inoculation of the gastro-intestinal tract or mediastinal glands. Such a lesion, however, would not be of the so-called latent type, but must be ulcerative, and hence recognisable. As a rule the clinical importance of a tubercular lesion in the tonsillar tissues of the throat was about the same as local tuberculous lesions in any other non-vital part of the body which is separated from the internal organs by an intervening chain of lymph-nodes. Primary tuberculosis of the larynx was exceedingly rare. The method by which the tubercle bacillus gains a foothold in the laryngeal mucosa probably varied in different cases. In a very few cases the organism might penetrate through the unbroken epithelium. It might enter through the gland-ducts, which was probably the line of infection when the lesion began in the vestibules. The erosions caused by the traumatism of cough and the constant irritations of large quantities of decomposed sputum might become infected with tubercle bacilli. Be the method of penetration what it may, the essential element in the infection was the enormous and constant dosage to which the larynx is subjected.

A Certain Phase in the Differential Diagnosis of Tuberculosis and Syphilis of the Upper Respiratory Tract.—Dr. LEE M. HURD, of New York City, read this paper. Certain phases of syphilis of the mucosa were histologically identical with tuberculosis, that is, where there might be easily demonstrated, under the microscope,

a number of giant-cells. These giant-cells did not seem to differ in any way from the so-called Langhan's giant cells. The pathologist should be careful in making an unqualified diagnosis of tuberculosis, because in every field one or several giant-cells are found. The presumptive diagnosis, whatever the clinical history, should be syphilis when the marked vascular thickening and the number of giant-cells were out of proportion to, and more prominent than, the coagulation necrosis, unless the tubercle bacilli could be demonstrated in the tissues. While giant-cells were much more often found in tubercular than in syphilitic foci of chronic inflammation, when they did occur in syphilis they were much more numerous than was usual in tubercular cases. The presence or absence of caseation and other degenerative processes did not constitute a distinctive sign between these two diseases, as such retrogressive metamorphoses might occur in syphilis, as well as in tuberculosis; neither was the production of connective tissue, with the resultant scar formation, a reliable sign. Arteritis, leading to vascular obliteration, was not entirely conclusive, as this vascular change, which is often cited as a characteristic feature of syphilis, was also met with in tubercular conditions. The microscopic and clinical pictures could not be unqualifiedly relied upon, and unless the tubercle bacilli could be demonstrated in the tissues or by inoculation the condition should be considered syphilitic, and treatment administered accordingly. Three illustrative cases were detailed.

The Baneful Influence of Pregnancy on Laryngeal Tuberculosis.
—Dr. WOLFF FREUDENTHAL, of New York City, said in this paper that it was impossible to answer directly the question whether pregnancy had any influence in producing laryngeal tuberculosis in a person already afflicted with tuberculosis of the lungs. Tuberculosis, like syphilis, carcinoma and other systemic diseases, was apt to form a new focus wherever there was a *locus minoris resistentiæ*. If the larynx had been weakened by previous inflammatory attacks it would be more prone to become tuberculous at the slightest provocation, and gestation might well be considered a factor, though its direct influence in causing laryngeal tuberculosis could not be proven. If, on the other hand, laryngeal tuberculosis were already established, pregnancy had decidedly deleterious effects. It could undoubtedly light up an old process that had been practically arrested, and it was a positive contributing cause in rendering worse an already existing one, as could

readily be understood by a consideration of the physiological conditions belonging to pregnancy. The difficulty of nourishing a phthisical patient was greatly enhanced if the material organism must assimilate food for two instead of one being. Breathing was rendered more difficult by the expanding abdomen, and if to this be added some obstruction in the larynx, as, for example, perichondritis of the arytenoids, interarytenoid tumefactions, extensive infiltration of the vocal cords, etc., there was a second factor which helped to impair both the general condition and the condition of the larynx as well. Other conditions attendant upon pregnancy, not entirely physiological, which had no beneficial effect upon the tuberculosis, but rather accelerated the process, were anæmia and the various neuralgias. Vomiting also increased the irritation of any existing ulcerations in the larynx, with increase of pain and dysphagia. An even more injurious effect was produced by cough. A careful study of the literature of the subject, together with his personal experience, led to the belief that in such cases the mother almost invariably dies shortly after delivery if allowed to go on to this point, and the child in almost every instance, and if these children survive for more than a year only a small percentage could be reared, even with the greatest care, and these were weaklings. The usual remedies for tuberculosis were very unreliable in these cases; the disease made rapid progress, and the only recourse left was artificial interruption of pregnancy or tracheotomy as an *inductio vitalis*. The latter the author would reserve for cases presenting marked dyspnoea. In all other cases he recommended the early interruption of pregnancy. An exception to this rule was that class of case in which the woman is first seen at the end of pregnancy, when a few weeks makes no difference, so far as the mother is concerned, and it was best to wait in the interest of the child. The medico-legal side of the question was important but was not discussed.

Dr. CLEMENT F. THEISON, of Albany, N.Y., said that in considering the differential diagnosis between laryngeal tuberculosis and laryngeal syphilis, the hypertrophic or hyperplastic form of the former should be borne in mind. In this form of tuberculosis distinct hyperplasia of the tissues existed, which might go on through the entire course of the disease without ulceration. Ulceration, however, might result in the later stages of the disease. The syphilitic tumour, the granuloma, usually developed around an ulcerative process, which as a rule appeared first. A

distinct tuberculous tumour sometimes occurred in the larynx and did not ulcerate.

Dr. GEORGE T. ROSS, of Montreal, Canada, asked Dr. Levy what percentage of primary laryngeal lesions existed in his cases exclusive of constitutional infection. Dr. Wood's case referring to infection through the tonsil was interesting. He asked if any examination was made, with reference to other pathological germs besides the tubercle bacillus known to exist in the so-called healthy mouth, such as the *Diplococcus pneumoniae*, and others capable of producing infective symptoms. He agreed with Dr. Freudenthal that tuberculosis in a pregnant woman meant, very often, a bad prognosis for her so far as life is concerned. For although an apparent quiescence existed during the progress of gestation, after the accouchement renewed activity ensued in the disease, and this often hastened the end.

Dr. JAMES F. McCaw, of Watertown, N.Y., cited a case, still under observation, in which a presumptive diagnosis of tuberculosis had been made. The patient was a girl, aged seven, who, shortly after playing on a dump-heap in the town to which her family had recently moved, first noticed a small ulceration on the side of the nose. The process spread fairly rapidly and involved almost to the angle of the eye and well down on the cartilaginous portion of the same side. The cervical lymph-nodes, well down to the clavicle, anterior and posterior chains, later became involved and were subsequently removed. It was thought that a general infection had taken place. This was evidently a case in which general infection took place from a local lesion on the external surface of the nose.

Dr. J. PRICE-BROWN cited a case referred to him as tuberculosis of the larynx. The patient, a young man, gave a family history of tuberculosis. The vocal cords were markedly thickened and there was considerable infiltration. No tubercle bacilli were found upon examination. The patient was put on anti-syphilitic treatment and had greatly improved. The voice, which was practically lost, had returned.

Dr. ROBERT LEVY, of Denver, Colo., said the question raised by Dr. Wood called attention to the work done by Walsham, who concluded from the many autopsies performed by him that tuberculosis can often be traced through the tonsils, involving the lymphatic glands in the neck, and later the bronchial glands and lungs. Answering Dr. Ross's question, he said in no case had he been satisfied that the infection in the larynx was primary. He

had seen a great many cases in which the only manifest lesion was in some portion of the upper air-passages, but in no instance would he conclude that this was a primary lesion, unless the patient should die of some intercurrent disease, and autopsy reveal beyond a doubt that there was no other manifestation of tuberculosis.

Dr. WOOD, in closing the discussion, said that he had seldom been able to demonstrate tubercle bacilli in tonsillar tissue, and that he did not consider that the demonstration of their presence was necessary to a diagnosis of tuberculosis, when the typical histologic changes were present. He considered that the recent work of Beitzke was probably the best and most thorough that had been done with relation to the possibility of infection of the pleura or bronchial lymph-nodes directly from the cervical lymph-nodes.

Dr. FREUDENTHAL, in closing the discussion, said the question of primary tuberculosis of the larynx had occupied his mind for a long time, and he was not convinced that he had ever seen a case. A case had recently been demonstrated at the New York Academy of Medicine as primary tuberculosis or *lupus* of the larynx. He questioned the diagnosis at the time, and shortly thereafter it was demonstrated that the patient had tuberculous of the lungs. He had found hypertrophy of the lingual tonsil in a great many cases of tuberculosis of the larynx.

*A Case of Primary Carcinoma of the Uvula ; Operation ; no
Recurrence.*

Dr. CLEMENT F. THEISEN, of Albany, N.Y., who read this paper, said that primary carcinoma confined absolutely to the uvula is very rare, only a few cases being reported in the literature of recent years. The case presented was that of a male, aged fifty-two, who stated that for three months prior to consultation he had felt a growth in his throat, and at times had experienced pain radiating to the ears. On examination of the throat the uvula was found to be transformed into a somewhat nodular growth, firm to the touch, and so large that it disturbed him in eating, but did not interfere with respiration, nor was the voice affected by it. The growth did not extend to the soft palate, nor was there any induration of the surrounding tissues. The rest of the pharynx and the naso-pharynx, larynx and nose were normal. On the sides and tip of the growth were firm, nodular excrescences. There were no enlarged glands. The growth was removed, and the wound cauterised with chromic acid. No recurrence fourteen

months after operation. Microscopic examination confirmed the diagnosis of carcinoma of the uvula.

Dr. GEORGE B. WOOD, of Philadelphia, said that he had had two cases of malignant tumour of the tonsil during the past winter. One patient had a bad recurrence, but the other was doing fairly well up to date. Both of these cases were sarcoma, one belonging to the round-cell and the other to the spindle-cell variety.

A Second Report on a Case of Primary Epithelioma of the Uvula, operated five years ago without recurrence.

Dr. JAMES F. McCaw, of Watertown, N.Y., in this paper reviewed the history of a case, a detailed report of which could be found in the *Transactions* of this Society for 1902. The patient was first seen in consultation on November 19, 1901. The trouble began eight months before with soreness and slight irritation in the throat. In a short time several small ulcerations were noticed on the soft palate. About October 1 the soft palate began to enlarge and very rapidly fill the throat. This was quickly followed by dysphagia, pain, muffled intonation, and soreness in the cervical muscles. When first seen by the author a mass was found involving the uvula, soft palate, posterior pillars, the right lateral and a portion of the posterior pharyngeal wall. The mass was thoroughly excised with the electro-cautery knife, curetting and deep canterisation of the raw surfaces, and subsequent irradiation with the Röntgen ray. After two operations according to this method the parts healed, after about twelve weeks of such treatment. The case had been kept under observation. No sign of recurrence had been noted; the patient was in better physical condition than for years. The palatal and pharyngeal muscles functionated perfectly. The only apparent deformity was the loss of the uvula and slight tension of the velum palati.

Presentation of Cases.

Adeno-carcinoma of the Maxillary Antrum.—Dr. LEE M. HURD, of New York City, reported this case. The patient, a man, aged fifty-nine, had first consulted him in December, 1905. Ten years previous to this the patient had noticed a small swelling on the alveolar process of the right side. The teeth of this side had subsequently fallen out. No symptoms other than the swelling had been noted until about a year before consultation, when the face and hard palate began to swell. When examined the growth

in the mouth was found to have a cystic feel, and to encroach slightly upon the opposite side. An area of bone absorption was found just below the right eye, and the growth encroached upon the infra-orbital ridge internally. After ligating the external carotid artery the malar process was divided with a Gigli saw, the hard palate divided with the chisel, the soft palate separated, and the growth turned out. Remnants from the opposite side of the hard palate were removed together with the bone, the cavity was packed with iodoform gauze, and the skin sutured. The growth was pronounced malignant adeno-carcinoma by Dr. Jonathan Wright. There were no signs of recurrence when reported, eighteen months after operation.

Primary Tuberculosis of the Septum.—Dr. JOSEPH H. ABRAHAM, of New York City, presented a case of primary tuberculosis of the nasal septum in a woman, aged seventy. Following recovery from an attack of acute rhinitis the patient inserted her finger into the nasal cavity of the right side, and detected a swelling which she found to obstruct breathing through this nostril. Examination revealed a tumour on the antero-inferior portion of the septum. A small portion of this was removed, and microscopical examination revealed a tuberculous condition. There were no other signs or history of tuberculosis, nor could a positive history of syphilis be obtained.

Œdematous Nasal Polyp.—Dr. WENDELL C. PHILLIPS, of New York City, reported this case. The patient, a boy, aged eight, had come under his care in October, 1905, with a history of month-breathing for several years. There had also been occasional attacks of antral discharge, and the patient had suffered from time to time from *petit mal*, losing consciousness for about ten seconds during each attack. Marked impairment of speech had been noted since the child began to talk. He seemed bright mentally. On October 31, 1905, the adenoids and tonsils were removed, and an effort made to remove through the anterior nares what appeared to be a foreign body surrounded by mucus, and situated between the left inferior turbinate and the septum far back. During these manipulations a large polypus, the size of an English walnut, dropped into the naso-pharynx.

The tumour was submitted to Dr. Jonathan Wright, who returned the following pathological report of the microscopical examination: "This presents the unusual appearance of an œde-

matous nasal polyp. It contains but little stroma, a few blood-vessels with considerable lowly organised tissue around them. The age, eight years, is very rare for this kind of growth. I think I have seen only one younger. [He later said none younger.] I am under the impression that when œdematous polypi do form before puberty they are more frequently attached to the inferior turbinate. After puberty they are always attached to the middle turbinate. I presume this has some relation to the physiological fact that the erectile tissue develops in the inferior turbinate mucosa and renders it insusceptible to the infiltration with serum, as in the middle turbinate where are found the typical mucous polypi."

In March, 1906, patient reported considerable discharge from the nose, mostly from the left side, and inspection showed a return of the polypoid growth.

On May 8, 1907, a second pedunculated polypus, bearing histological characteristics similar to the first one, was removed from the posterior part of the left inferior turbinate. This was removed by first grasping the pedicle with forceps and tearing it loose, when the mass fell into the pharynx. This method had been found to succeed when all others seemed to fail. There had been no improvement as to frequency or severity of the attacks of *petit mal*.

Angeioma.—Dr. PHILLIPS also exhibited a little patient, aged eleven, with a gradually increasing angeioma involving the entire right side of the head, from the level of the orbit to the upper portion of the neck. It had entirely separated the cartilaginous from the bony segment of the external auditory canal, but the canal was intact and the patient's hearing good. He removed some redundant tissue from the concha, which had shown the growth to be angeiomatous in character. There was great deformity on account of the drooping of the ear upon the affected side. A fuller report has been made of this case to the Section on Otology of the New York Academy of Medicine, which would appear, with the discussion, in the *Transactions* of that body.

Two Cases of Otitis Media Catarrhalis Chronica showing Improved Hearing after Acute Mastoiditis treated by Operation.—Dr. WILLIAM SOHIER BRYANT, of New York City, reported these cases. In the first patient, aged nineteen, the hearing for the watch, previous to mastoiditis, was 50 in. in each ear. Since the convalescence from mastoiditis, two years ago, the hearing had continually

improved in the operated ear and continually decreased in the non-operated ear. The hearing, when reported, was 36 in. in the non-operated ear and 7½ ft. in the operated ear.

The second case was that of a child, aged thirteen, who had had chronic middle-ear catarrh and mastoiditis, having been operated upon for the latter. Before the mastoiditis the hearing was between 20 and 26 in. for the watch in the non-operated ear; in the operated ear slightly less. Two months after operation, the hearing remained the same in the non-operated ear and rose to 12 feet for the same watch in the operated ear.

Cleft Palate.—Dr. TRUMAN W. BROPHY, of Chicago, presented a case illustrative of the value of early operation for the closure of cleft palate. When the patient was three months old the hard palate was brought together, the lip was closed when the child was five months old, and the final operation for closure of the soft palate was performed at the age of two and a half years. Believing cleft palate to be due to a wedging process which takes place in embryo, and that the bones are not lost but merely separated, his operation was designed to supplement the work of Nature by bringing these bones together and moulding them in place.

Laryngeal Tuberculosis.—Dr. ROBERT LEVY, of Denver, Colo., presented a patient who for two years had been suffering from pulmonary tuberculosis, and for a year and a half from laryngeal tuberculosis, the active manifestations being on the internal surface of the left arytenoid cartilage, with characteristic œdematous infiltration of both arytenoids, and aphonia. After three months' treatment the voice improved. The ulceration healed entirely. When reported there was still some infiltration, but the condition was improving from day to day, despite many recurrent infections.

Presentation of Instruments, etc.

Dr. CHEVAHER JACKSON, of Pittsburg, Pa., presented a modification of Dr. Mosher's *Safety-pin Closer*. The latter consists of a stem with a ring attached, in conjunction with which is used a second instrument in the form of a fork or prong. With the fork the pin is pushed into the ring and closed. In unskilled hands difficulty is experienced in getting the ring down past the safety-pin in the œsophagus or trachea. The modification obviates this difficulty by having the ring in the same plane as the stem when

introduced; having passed the safety-pin, the ring is moved to a right angle by means of the lever handle.

Anti-tubercle Screen.—Dr. ROBERT LEVY, of Denver, Colo., presented a glass screen to be placed between the patient and the operator, especially in the treatment of tuberculous cases. It may be attached to the standard of the cuspidor, to a separate standard, or to the adjoining wall. The advantages claimed for this screen over others which have from time to time been devised are its simplicity, its cheapness, and the ease with which it may be manipulated.

A Nasal Snare.—Dr. L. L. MIAL, of New York City, presented a snare which he had designed for nasal use, especially in those instances where it is necessary to have the wire loop turn at an angle after insertion in the nasal chamber. To do this the natural elasticity of the wire is made use of and the loop can be made to turn from a very obtuse angle to even more than a right angle. The instrument consists of the ordinary cannula, a hollow draw-bar to which the loop is attached with regular screw on opposite end, and through this hollow draw-bar a long stylet passes and projects at the distal end sufficiently to hold the loop straight after it has been bent to the desired angle. In removing a posterior tip the wire is first fastened to the draw-bar and then drawn slightly into the cannula to secure it; the loop is then forcibly bent to the angle desired and the stylet is then passed through, and the loop is held in straight position by hitching it over the tip. The loop is then passed along the floor of the nose until the posterior wall of the pharynx is reached. The stylet is then withdrawn, and the loop being released turns at the angle to which it has been previously bent, and engages the hypertrophy very promptly. He had used it for several months with great satisfaction. The instrument is made by the Ford Surgical Instrument Co., of New York City.

Presentation of Pathological Exhibits.

The anatomical exhibit consisted of three sectional skulls, each specimen beautifully demonstrating one or more anomalies of the accessory sinuses.

The first specimen (lent by Dr. ABRAHAM) demonstrates one large ethmoidal cell, occupying almost the entire ethmoidal labyrinth. It measures 2.3 cm. antero-posteriorly, 1.1 cm. laterally,

and 1.5 cm. in its vertical diameter. In front of this cell is a smaller cell, which projects into the frontal sinus posteriorly, constituting a so-called frontal bulla. This cell is 1 cm. long, 0.6 cm. wide, and 0.5 high. Internal and anterior to the hiatus semilunaris is a so-called infundibular cell, representing the anterior expansion of the unciform process. This cell causes a projection in the floor of the frontal sinus. The ostium of the frontal sinus is not at the lowest point, but about 0.6 cm. above the lowest point of its floor.

The second specimen (lent by Dr. ABRAHAM) demonstrated an exaggerated deflection of the septum between the frontal sinuses. Even at the lowest part of the sinus, where the position of the septum is considered to be always constant, the septum is displaced 5 mm. to the left. From here it goes upward and outward, so that in its upper part the septum is 1.5 cm. to the left of the median line. The right frontal sinus is about five times the size of the left sinus. Both sinuses show prolongations laterally to a point 1.5 cm. external to the supra-orbital notch, and backward into the orbital plate. The right sinus has only one small vertical septal ridge in its posterior angle. The left sinus is subdivided by three fairly large incomplete septa.

The third specimen, shown by Dr. ABRAHAM, was lent by Dr. J. W. GLEITSMAN. It shows a very large frontal sinus, which extends upward about 2 cm. into the vertical portion of the frontal bone, outward to the articulation with the zygoma, and backward into the orbital process of the frontal bone about $1\frac{1}{2}$ cm. It covers in the anterior ethmoidal labyrinth above. There is a marked prominence on its posterior and internal walls, caused by the presence of a so-called frontal bulla. This frontal bulla is nothing more or less than a large posterior ethmoidal cell, which lies just behind and internal to the frontal sinus, and opens into the superior meatus. The anterior ethmoidal labyrinth comprises one large cell, which is represented by the ethmoidal bulla. The bulla forms a very marked prominence on the outer wall of the middle meatus. The posterior ethmoidal labyrinth consists of one large and four smaller cells, each opening by a separate ostium into the superior meatus, in addition to the frontal bulla above described. The sphenoidal sinus is very large. It measures $3\frac{1}{2}$ cm. in its antero-posterior diameter. It extends for a considerable distance forward into the lesser wing, outward into the greater wing, and backward into the basilar process of the occipital. It has a large ostium, about 8 mm. in diameter, opening into the sphenothmoidal

recess. The outer wall of the inferior meatus shows a marked outward bulge, so that the inner and outer walls of the antrum are almost in contact. An opening drilled through the alveolus would enter the inferior meatus instead of the antrum.

Dr. ABRAHAM exhibited a section made by Dr. Jeffries from a tumour of the nasal septum in a woman, aged seventy. Dr. Jeffries made the following report: "The tissue from the nose marked 'J. C.' received from you is typical tubercular tissue with multiple tubercles, most of which are undergoing cheesy degeneration and contain giant cells. The nodules are of epithelioid cells, and are surrounded by zones of exudative infiltration."

Dr. E. G. ZABRISKIE exhibited three pathological specimens from the laboratory of the Manhattan Eye, Ear, and Throat Hospital.

The first was a section from a tumour sent by Dr. Chevalier Jackson, which filled the whole right side of the larynx, and involved the left ventricular band. It resembled very closely the cancrroids frequently seen about the face. Scattered throughout a fibrous stroma there were patches of aberrant epithelium, whose centres had undergone hyaline degeneration and in places had dropped out, leaving a rim of atypical cells which looked like a glandular acinus. There were several more or less typical pearls or whorls scattered throughout the section. The cells had a rather granular protoplasm, and showed a decided lack of irregular karyokinesis.

The second section was from a growth of the middle turbinate, sent by Dr. Smith. The patient was aged sixty-five; duration, four years; recurrence for the third time. The glandular elements of the mucosa are considerably increased, although not enough to warrant a diagnosis of pure adenoma, but the most striking changes occur in the connective-tissue trabeculae, which are remarkably hyperplastic, and show a very curious hyaloid degeneration. This often appears among the glandular elements in the form of homogeneous glistening droplets or facettled particles, numbering four to eight, and held together by a cell membrane. This has been fully described by Dr. Wright in the *American Journal of Medical Sciences*.

The third was a section of a fibro-myxoma of ordinary type, springing from the alveolar process of the upper jaw, involving the antrum of Highmore and the maxillary ridge.

Dr. PRICE-BROWN exhibited a pathologic specimen, weighing nearly two ounces, which he had removed from the left maxillary antrum through the anterior wall. Duration of illness six months.

During this period many polypi were removed from the nose, and the antrum opened through the inferior meatus and the last alveolus. The maxillary protrusion constantly became larger. A radical operation was done by Dr. Brown. The outer wall of the antrum was largely destroyed. A large growth filled the antrum, and was shelled out without much difficulty. Cavity was eurented and packed with iodoform gauze. Microscopical examination showed the growth to be a myxo-fibroma, with a few suspicious cells, possibly sarcomatous. The wound in the maxilla closed, but the appearance was not satisfactory.

Further report: A second section of the tumour was found to contain spindle-cells, making the diagnosis that of sarcoma. As the protrusion of adventitious tissue from the jaw rapidly increased, pressing out the cheek very noticeably, the reporter, on June 26, removed the greater part of the affected maxilla. There was much hæmorrhage, but the patient rallied well.

Abstracts.

PHARYNX.

Barwell, Harold S. (London).—*A Note of Hypo-pharyngoscopy.* "Lancet," August 17, 1907.

The author describes the method devised by von Eicken, of Freiburg, by inserting a stout laryngeal probe between the vocal cords which can be drawn forward so as to expose new growths in the post-cricoid region.

StClair Thomson.

Niles, R. M., M.D.—*Chronic Pharyngitis.* "New York Medical Record," October 5, 1907.

The treatment of pharyngitis should aim to correct errors in hygiene and to prescribe constitutional remedies for existing dyscrasias. The red and yellow iodides of mercury seem, at times, to be beneficial, even in cases presenting no specific history.

Local treatment is of the greatest importance. One must eliminate the ætiological factors if possible, or at least mitigate their deleterious effects, and treat the nasal disease which so often coexists with assiduity.

For cleansing purposes the author uses:

R. Pot. bicarb.	5iv
Spt. menth. pip.	
Spt. camphoræ	āā5ss
Aq. ferv.	q.s. ad 5iv

The strength of the formula given may be diminished, if desired, by the addition of water. The specific gravity of watery solutions used in

the nose should approximate 1020. Aqueous solutions may be lowered in sp. gr. by adding water, or raised by the addition of glycerine or sodium chloride.

After cleansing the nares and pharynx, applications of iodine and glycerine (gr. v-xxx to 3j), tannic acid and glycerine, resorcin, etc., may be employed. In general the author thinks the medicaments used are too weak, although in certain cases even very mild applications aggravate the condition. It is wise, therefore, in most cases to begin with the milder applications, gradually increasing their strength as the exigencies of the case demand.

In follicular pharyngitis strong solutions of silver nitrate applied after cocainising the pharyngeal mucosa are used.

As there is an abnormal blood supply with resultant disturbance in nutritive equilibrium, measures which tend to overcome relaxed vascular walls and promote normal tissue metabolism should, and do, prove most advantageous.

Local applications of capsicum act with great celerity in atonic and in ulcerated pharyngitis.

Vinegar of capsicum (10 per cent. to 20 per cent.) is applied to relaxed conditions. The oleoresin (1 per cent. to 5 per cent.) in cod-liver oil is preferable in atrophic and follicular cases. Apply with a swab.

Under the capsicum treatment nodules disappear, atrophic mucosæ become better nourished, passive congestion is relieved, and normal secretion is re-established.

W. Lauzun-Brown.

Berard, M. L.—*Congestion of the Thyroid Gland.* "Gaz. des Hôpit.," November 27, 1907.

According to the author reflex vaso-motor disturbances having their origin in the sexual organs play an important rôle in the ætiology of this affection. Mention is made of the congestion occurring before the first menstruation and during the period, especially when associated with dysmenorrhœa in chlorotic girls. Sexual excitement is capable of inducing it; the glands are constantly enlarged during the œstrual period in animals. Enlargement during pregnancy was observed in forty-five out of fifty cases by Wolfgang Freund. The strain attendant on labour accentuates the condition. Tarnier has observed cases of this nature where swelling of the gland has almost reached the point of suffocation. Reflex congestions take place at the menopause, and are at this time sometimes premonitory of thyroid carcinoma.

In men swelling of the gland may attend puberty; masturbation is cited as a cause at this period. Passive congestion is induced by tight clothing about the neck or by a constricted position of the latter, as in bending forward the head for lengthened periods in certain occupations. Overstrain is an important ætiological factor, as seen in untrained runners and gymnasts. It has also been noticed in singers and commanding officers and during fits of coughing and vomiting.

In infancy the condition is met with as a form of "congenital goitre," also as a result of prolonged labour, face presentations, and pressure on the cord. The writer states that the gland is much more prone to congestion under all circumstances and ages in countries where goitre is endemic, owing to instability of functional equilibrium.

H. Clayton Fox.

NOSE.

Leroux, R.—*Paraffin in Nasal Prosthesis.* "La Presse Médicale," January 25, 1908.

In this paper the author passes in review some of the methods in vogue for restoration of the nasal contour. He prefers a paraffin of high melting point, 78°, and introduces it in the cool state. Briefly the technique of the operation is as follows: No anæsthetic is required. With the patient in the recumbent position the nasal integument is sterilised; an incision is made through the skin at the lower third of the nose with a furunculotome; then a long, narrow spatula is inserted through the opening into the subcutaneous tissues, in such a manner as to prepare suitable receptive beds for the paraffin; great care is taken not to burrow beyond the region to be restored, so as to avoid unnecessary diffusion of the wax. The writer attaches great importance to this stage of the operation, and considers that success depends in no small measure upon the way in which it is carried out. The paraffin is warmed sufficiently to bring it to a doughy consistence for introduction into the cannula of the instrument, which is a sinusitis trocar. The tube containing the wax is then introduced high up into the preformed cavity, and as the paraffin is pressed out of the cannula by the introduction of the mandrin with the index finger of the right hand, it is moulded as required by the fingers of the left; after withdrawal of the tube the skin opening is sealed with collodion. Although it is possible to complete the operation at one *séance*, the writer prefers to introduce the paraffin at intervals of eight days, believing that by adopting this course the tissues become habituated to tension and the presence of a foreign body. The advantages which the author claims for this method are, briefly, freedom from embolism, sloughing of tissues and diffusion beyond the needed area—conditions likely to follow hot injections. Moreover, satisfactory encapsulation is more likely to result from his method.

H. Clayton Fox.

Bucklin, C. A. (New York).—*Hypertrophic Nasal Catarrh and Complications, with Clinical Illustrations.* "Arch. of Otol.," August, 1907.

The writer considers that nasal catarrh is occasioned by obstructions to nasal inspirations. He estimates the vacuum formed within the entire respiratory track with each forcible inspiration in patients suffering from this disease as 1.36 lb. to the square inch, and finds that when this vacuum is diminished to about one half the symptoms of catarrhal disease and their complications disappear within ten days. The means for effecting this consist in the removal of the main bulk of the inferior turbinal by means of a saw. He considers this of the greatest curative value in pulmonary tuberculosis as well as in asthma, hay-fever, catarrhal otitis media, and chronic lacrymal disease. He measures the amount of the vacuum by the "respirometer," in which a column of water is raised in a tube held in the patient's mouth during deep inspiration through the nose, and the capacity of the chest by the "displacement vessels" into which the patient blows after a full inspiration. The writer has long been known as the earliest advocate of the nasal saw, and he reports a number of illustrative cases from his large clinical experience. Dundas Grant.

Gaullieur L'Hardy.—*Piquet's Numerical Index in Adenoid Subjects.* "Gaz. des Hopit.," January 22, 1908.

This index, which has been adopted by the writer as a test for the robust-

ness of the subject, is arrived at by subtracting the sum of the major perithoracic circumference and the weight from the height. The following table gives the results of its application in the case of ordinary individuals :

Numerical index below 10 = very vigorous constitution.

"	"	from 11 to 15 =	vigorous	"
"	"	"	16 " 20 =	good
"	"	"	21 " 25 =	pretty good
"	"	"	26 " 30 =	feeble
"	"	"	31 " 35 =	very feeble
"	"	above 35	=	weakly

Dr. P. Nodestini has applied this test to those suffering from adenoids, and the results are shown in the table appended :

In 7.7 per cent. of cases the index varied between 16 and 20, constitution good.

" 46	"	"	"	21	"	25,	"	pretty good.
" 30.76	"	"	"	"	26	"	30,	feeble.
" 15.39	"	"	"	"	31	"	35,	very feeble.

The writer noted from these observations that the index varied directly in proportion with the adenoids and the results accruing therefrom : thus where there was a high index the vegetations were plentiful, with pronounced nasal, respiratory, and circulatory troubles, whilst the reverse obtained with a low index. Another observation by Dr. Modestini was that, contrary to that which obtains in a well-developed body, the measurement between the finger-tips with the arms outstretched horizontally exceeded that of the height in adenoid subjects. This he ascribes to the fact that owing to fluttering the transverse diameter of the throat is increased in such individuals.

H. Clayton Fox.

LARYNX.

Horn, O., and Moller, J. (Copenhagen).—*A Case of Hæmangioma of the Left Vocal Cord.* "Arch. für Laryngol.," vol. xx, Part I.

Hæmangiomata, although much less rare than lymphangiomata, form hardly 1 per cent. of the benign new growths met with in the larynx. The author of this paper adds another case to the thirty-five which have been already recorded.

The patient was a man, aged forty-four, the subject of pulmonary tuberculosis, who had been hoarse for a long time. When first seen the left vocal cord was intensely red and presented on its margin two somewhat oedematous swellings, the surfaces of which were ulcerated. Under treatment that swelling which involved the posterior part of the cord became flattened and less prominent, while the other swelling which was attached to the anterior part of the cord became pedunculated and movable and assumed a bluish-red colour. The lung disease proved fatal after the patient had been under observation for seven months.

Examination of the larynx after death showed a smooth reddish polyp, hardly as large as a pea, attached to the anterior third of the left cord by a flattened pedicle. Beneath the free margin of the posterior part of the left cord were several deep ulcers, which, as microscopical examination showed, were typically tuberculous. The tumour consisted of large blood-filled spaces whose walls were separated from one another by thin connective-tissue septa.

The true nature of the tumour in this case was at first marked by the associated tuberculous disease, and only became evident about one month before death, when the local tuberculous condition had greatly improved under treatment.

Thomas Guthrie.

Van den Wildenberg (Antwerp).—*Two Cases of Papillomata of the Larynx in Little Children treated by Killian's Direct Method.* "La Presse Oto-laryngologique Belge," August, 1907.

Communicated to the Belgian Society of Oto-rhino-laryngology.

In a child, aged seventeen months, the cause of aphonia and slight but progressive difficulty of breathing was seen without difficulty, by Killian's tube-spatula, used under general anaesthesia, to be due to two papillomatous growths in the larynx. They were successfully removed.

The second child, aged eighteen months, had been aphonic for a year, and had had several dangerous suffocative attacks. There was considerable dyspnoea and some bronchitis. The same procedure was followed, but during the manipulations tracheotomy became necessary. The larynx was full of papillomata; these were ablated at subsequent sittings, and the tube removed. The patient ultimately did well.

The difficulties encountered in such young children are due to the small size of the larynx and the shortness and softness of the epiglottis. Cocaine and adrenalin are not very safe for infants, and the author prefers to operate without their aid, under light general anaesthesia.

Chichele Nourse.

EAR.

Hunt, J. R. (New York).—*Herpetic Inflammations of the Geniculate Ganglion.* "Arch. of Otol.," August, 1907.

Herpes zoster in the region of the trifacial and of the superficial cervical plexus is well known, and the writer associates herpes affecting the ear with the seventh nerve, which he compares to a spinal nerve having the geniculate swelling as the posterior root-ganglion, the nerve of Wrisbey as the afferent root, the facial as the motor, while the peripheral divisions are the petrosal nerves to the carotid (sympathetic), the otic, and Meckel's ganglion. The greater and lesser superficial petrosals both participate in the tympanic plexus.

The clinical types are: (1) Herpes auricularis, situated in the concha, meatus, and tympanic membrane; (2) herpes auricularis, facialis, or occipito-collaris with facial palsy in which the inflammation has extended to the facial nerve, including often the chorda tympani; (3) herpes auricularis, facialis, or occipito-collaris with facial palsy and hypo-acousis, there being extension to the auditory nerve; (4) herpes auricularis, facialis, or occipito-collaris with facial palsy, deafness, and symptoms of Ménière's disease. The writer recalls that the acoustic ganglion is an outgrowth of the so-called neural ridge from which the Gasserian, geniculate and posterior spinal ganglia take their origin, the cells of the geniculate assuming the spinal unipolar type and those of the acoustic (Corti and Scarpa) retaining their primitive bipolar character. The rarity of the affection is shown by statistics giving 5 cases out of Gruber's 20,000 cases of ear disease, 2 out of 47,600 in the Manhattan, 1 out of 15,000 in the Brooklyn, 33 out of 65,000 in the Massachusetts Eye and Ear Hospital. Leeching the mastoid region is recommended as soon as the diagnosis is made. For further details the author refers to the *Journal of Nervous and Mental Diseases*, February, 1907, the *Transactions of the American Neurological Association*, 1906, p. 184, and the "Transactions of the Meeting of the New York Neurological Society," March, 1907, in the *Journal of Nervous and Mental Diseases*.

Dundas Grant.

Barr, J. S., and Rowan, J. (Glasgow).—*An Investigation into the Frequency and Significance of Optic Neuritis and Other Vascular Changes in the Retinae of Patients Suffering from Diseases of the Middle Ear.* "Glasgow Med. Journ.," vol. lxviii, No. 6.

The authors of this paper have examined the eyes of 100 cases of purulent otitis media. They have ascertained that seventy-two of these cases showed more or less vascular engorgement in one fundus, sometimes in two. In six out of the seventy-two cases actual optic neuritis existed. All cases with the slightest error of refraction were excluded. The cases showing distinct vascular changes were carefully watched. The purulent otitis was more severe in these cases. The result of their investigation was: (1) That otitis media cases with vascular changes in the fundus should be carefully watched, and that to have a favourable result mastoid operations should be performed early; (2) if the vascular engorgement was clearing up then the prognosis was favourable and conservative treatment was recommended; (3) the ophthalmoscope should be employed in every case of purulent otitis media.

Andrew Wylie.

Küstner, W. (Halle).—*Tumours of the Auditory Nerve and the Possibility of their Diagnosis from the Clinical Phenomena hitherto Observed.* "Arch. f. Ohrenheilk.," Bd. 72, Heft 1 and 2.

From an examination of the literature on the subject the author points out that although many tumours growing in the cerebello-pontine recess may produce auditory phenomena by pressure upon, and destruction of, the acoustic nerve, yet very few of these are growths originating in the nerve-trunk itself. Most of them are tumours of the pons, cerebellum, meninges, cranium, etc. And so far no attempt seems to have been made to differentiate clinically tumours which grow in the nerve-trunk from those which merely implicate it secondarily.

He reminds us of the curious propensity exhibited by growths in this region to penetrate and occasionally to distend the internal auditory meatus, and draws attention also to the equally curious fact that the facial nerve, even when stretched by, or otherwise involved in, a tumour, retains its function after its close companion, the auditory nerve, has ceased to convey impressions.

In many cases of cerebello-pontine tumour the first symptoms which appear are unilateral impairment of hearing, with tinnitus and slight vertigo. But these signs are almost always attributed simply to middle-ear catarrh and no heed is paid to them. Even after the development of the other and more definite signs of cerebello-pontine tumour, a careful and patient investigation of the hearing is carried out so rarely that a complete picture of the auditory phenomena present in these diseases can scarcely be said to exist.

This deafness ultimately becomes absolute, but in only one third of the recorded cases is paresis or paralysis of the face also present.

He considers that Gradenigo's researches on the exhaustibility of the hearing-power in diseases of the nerve-trunk are of great value.

In any case the presence of these auditory phenomena enables us to fix with confidence the situation of the tumour.

Finally, he concludes that inasmuch as a tumour of the cerebello-pontine angle never produces steadily progressing nerve-deafness of a high grade, unless when other cerebellar symptoms are already present, it follows that if nerve-deafness of this type is present along with an absence of the

definite phenomena of pressure upon the cerebellum, then the tumour is one which is actually growing from the auditory nerve-trunk.

Don McKenzie.

MISCELLANEOUS.

Vernet, Dr. A.—*A Case of Tubercular Meningitis cured by injecting Beranech Tuberculin.* "Revue Medicale de la Suisse Romande," July 20, 1907.

The case briefly is as follows: A child, aged four, suffering from tubercular meningitis was considered hopeless. The symptoms were grave, one specially noted being "the characteristic odour of mice," often found in severe cases of this disease.

The tuberculin was injected for eight days, a dose each day, and the child became so well that she was removed to the seaside. A relapse ensued as severe as the original disease, and to show the value of the tuberculin, as soon as it was used the child improved and was soon well.

Andrew Wylie.

REVIEW.

Nisbet's Medical Directory.

We have received a copy of the first issue of "Nisbet's Medical Directory"—a handy volume of 789 pages, light, portable, well printed, and well bound, and suitable for the table of every medical practitioner. It contains the names, addresses, qualifications, telephone numbers, of every medical man, arranged in alphabetical order. The work also contains a note of any important work which the practitioner may have written or been engaged in. The price at which it is published (*7s. 6d.*) is by no means prohibitive. We have applied the usual tests as regards accuracy to this volume, and it has responded accurately to every one. The second part of the volume contains a local directory, in which the names of medical men are given under the names of places where they are resident. One has only to know the village, town, district, or country abroad, to be able to ascertain at a single glance the names of every practitioner practising there. The whole book is arranged with a view to handiness, and cannot fail to be of great service to those whose duties lead them into correspondence with medical men in various parts of the country and the globe.

THERAPEUTIC PREPARATIONS.

DOWN BROS., LTD., London.

BARDELLA BANDAGES.—We have received from Messrs. Down Bros., Ltd., London, a sample of a bandage which has been in use for some years. It is a gauze bandage, saturated with an antiseptic and cooling powder, and forms a convenient dressing for burns, scalds, and in certain conditions of eczema, herpes, and ulcerations of the skin. It may be used either loosely as an ordinary bandage, or can be folded into a pad or

compress when it is required that pressure should be used. It will be found of the greatest utility in vaccination dressing, and in skin irritations and complications of all kinds, as it is thoroughly and completely saturated with an antiseptic and healing preparation. We have tried it on several occasions, and have found it most helpful and efficient. It naturally finds its widest field for application in hospital practice, but ought to form an item of every field and ambulance equipment in the country, and we commend it also to the notice of all medical men who are in attendance on workmen engaged in occupations where burns and scalds are frequent accidents.

BURROUGHS WELLCOME & Co., Snow Hill, London.

"TABLOID" QUININE COMPOUND.

Each contains:

Cinchona alkaloids	gr. 1 (0.065 grm.)
Antifebrin (acetanilide) . . .	gr. $1\frac{1}{5}$ (0.078 grm.)
Camphor monobromate	gr. $\frac{1}{5}$ (0.013 grm.)
Powdered ipecacuanha	gr. $\frac{1}{5}$ (0.008 grm.)
Cascara sagrada extract . . .	gr. $\frac{1}{4}$ (0.016 grm.)

A product of Burroughs Wellcome & Co. is especially valuable at this season, when changeable weather frequently involves exposure to risks of colds and catarrhal and bronchial affections. The prompt use of the "Tabloid" product is therefore advisable. The antiseptic, antipyretic, expectorant and laxative principles combine to assist the patient to combat the infection and cut short the febrile process. One may be taken every hour in the early stages of catarrh.

Issued in bottles of 25 and 100.

THOMAS CHRISTY & Co., 10, Old Swan Lane.

GLYCO-THYMOLINE (KRESS) BIRMINGHAM NASAL DOUCHE.—We regard Glyco-thymolin as a scientific combination, its action being to deplete inflammatory engorgements by exosmosis, increasing capillary circulation, and maintaining aseptic cleanliness. When diluted to a 25 per cent. solution, Glyco-thymoline has a saline strength and alkalinity similar to that of blood. It was conceived with the natural constituents of blood and secretions of the mucous membranes in full view. A local application, to be successful, must harmonise with the natural fluids of the tissues treated. In addition it dissolves readily accumulated mucus, detaching mucus crusts and necrosed tissue.

Each fluid ounce contains:

Sodium	24
Boric acid	4
Benzoin	4
Acid salicylic	33
Eucalyptol	33
Thymoline	17
Betula lenta	08
Menthol	08
Pini pumilionis	17

Glycerine and solvents sufficient.

THE JOURNAL OF LARYNGOLOGY. RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

THE OPERATIVE SURGERY OF LABYRINTHINE SUPPURATION.

THE Otological Section of the Royal Society was the scene of an interesting and important discussion on the occasion of its last meeting. Messrs. West and Scott contributed a valuable and elaborate paper on "The Operative Surgery of Labyrinthitis." This was not a mere arm-chair study, but was founded on a personal experience of thirty cases. After reference to the work of other operators, the authors gave a minute description of the anatomy of the labyrinth, of the morbid appearance, and particularly of the paths of infection. The analysis of the symptomatology presented many interesting features, one being the fact that nine of the thirty cases presented no "labyrinthine" symptoms. In most instances vertigo, vomiting, and deafness were marked. Tinnitus was only complained of in three, severe, deep-seated pain in the ear in four, and headache, relieved by labyrinthine operation, in four. The temperature and pulse were in no case characteristic, and spontaneous nystagmus was not observed. In the discussion the questions were raised of the diagnostic value of diminution of hearing for the highest pitched tones, nystagmus excited or not by syringing with hot or comparatively cold water (Barany), and other equilibration tests. As will be seen from our abstract of the proceedings, the question of the frequency of dangerous labyrinthine involvement in the course of suppuration of the middle ear was raised by Mr. Hunter Tod, who, in 350 cases of radical mastoid

operation, only remembered three in which there was evidence of disease of the labyrinth apart from superficial erosion of the external semi-circular canal. He pleaded for abstention from operation on the labyrinth unless there were very definite symptoms of a suppurative lesion being present. He admitted the possibility of caries of the promontory or chronic suppuration of the labyrinth being the cause of failure of the complete mastoid operation to cure the suppuration, but he had seen no serious symptoms, and as the result of proper treatment it was very rare that complete cure was not eventually obtained.

Such discussions, bringing out differences of opinion, due to various circumstances, are most valuable in enabling us gradually and surely to arrive at correct views as to the scope as well as the limitations of this valuable extension of our operative field.

LARYNGO-RHINOLOGICAL CONGRESS IN VIENNA.

President : Hofrat Professor O. CHIARI.

Treasurer : Dr. G. SCHEFF.

Secretary : Professor GROSSMANN, IX Garnisongasse 19, Vienna.

To celebrate the jubilee of Turck and Czermak, an International Laryngo-Rhinological Congress will be held in Vienna from 21st to the 25th of the present month, April, 1908. A rich and interesting programme has been drawn up, and, as will be seen, the Congress will be attended by a very large number of specialists of distinction from almost every civilised country. In order that the members of the Congress may become acquainted with each other, there will be held on April 20 a social meeting, which will, no doubt, amply fulfil its purpose. On the 21st the opening ceremony will take place, on the 22nd the formal discussions will be opened and held, and on the subsequent days various papers will be read and discussed.

The following is a list of discussions :

(1) Sir FELIX SEMON (London).—"On the General Treatment of Local Diseases of the Upper Air-passages."

(2) Professor B. FRÄNKEL (Berlin) and Dr. LERMOYEZ (Paris).—"On Laryngeal Rhinology from the Point of View of General Medical Instruction and Examination in this Department in the Different Countries."

(3) Dr. GLEITSMANN (New York) and Professor HERYNG (Waf-

saw).—"On the Treatment of Tuberculosis of the Upper Air-passages."

(4) Professor BURGER (Amsterdam) and Professor GRADENIGO (Turin).—"The Diagnostic and Therapeutical Value of Röntgen Rays and Radium in Laryngology and Rhínology."

(5) Professor OXODI (Buda Pesth) and Professor KUHN (Königsberg).—"On the Interdependence of Diseases of the Nose and Naso-Pharynx and those of the Eye."

(6) Professor JURASZ (Heidelberg).—"On International Laryngo-rhinological Congresses."

The following papers have been promised :

GLUCK (Berlin).—"Surgery in the Service of Laryngology" (with demonstration of patients).

HEYMANN (Berlin).—"The Lister-Garcia Principle."

HERYNG (Warsaw).—"On Inhalation Therapeutics."

FLATAU (Berlin).—"Recent Experience in Regard to Phona-sthenia."

GROSSMANN (Vienna).—"On the Intra-bulbar Connections of the Trigemínus with the Vagus."

BAUMGARTEN (Buda Pesth).—"Stenosis of the Larynx and Esophagus and its Influence on the Sexual Organs."

IMHOFFER (Prague).—"The Knowledge of Tuberculosis of the Larynx in Greek and Roman Antiquity."

MASSEI (Naples).—"Giant Growths in the Larynx."

DENKER (Erlangen).—"The Operative Treatment of Malignant Tumours of the Nose."

T. OLLER RABASA (Barcelona).—"Three Cases of Laryngeal Tuberculosis Treated by Deep Galvanic Cauterisation (Grünwald's Method)."

KILLIAN (Freiburg).—"Röntgen Photography in the Service of Rhínology."

V. EICKEN (Freiburg).—"Our Experiences with Killian's Frontal Sinus Operation" (with demonstration).

BRÜNINGS (Freiburg).—"On Technical and Clinical Progress in Bronchoscopy" (with demonstration).

NÄGELI (Geneva).—"The Treatment of Diseases of the Throat and Nose in Geneva since 1700."

EMIL GLAS (Vienna).—"Criticism of Massei's Law."

GLAS and KRAUS (Vienna).—"Laryngeal Tuberculosis and Gestation."

ULLMANN (Vienna).—"Contributions to the Relation between Exanthems and Enanthems in Typical Dermatoses."

KATZENSTEIN (Berlin).—"On Experiments on Owen's Gyrus Præcucialis."

SENDZIAK (Warsaw).—"The Question of the Radical Treatment of Carcinoma of the Larynx in the last Fifty Years."

BLAU (Görlitz).—"On the Sensory and Reflex Tracts of the Larynx."

RÉTHI (Vienna).—"Indications for Operations on the Nasal Septum."

RÉTHI (Vienna).—"Remarks on Pendular Contractions."

OXODI (Buda Pesth).—"On the Diagnostic Value of Transillumination of the Frontal Sinus."

MARQUIS (Chicago).—(Demonstration) "Enucleation of the Tonsil."

BRIEGER (Breslau).—"On the Importance of the Signs of Tuberculosis of the Pharyngeal Tonsil."

FÖRGEN MÖLLER (Copenhagen).—"Contributions to the Knowledge of the Mechanism of the Chest and Falsetto Voices."

STRUYCKEN (Breda).—"Optical Observations of Air Vibrations (Vocal Sounds, Galton Tones, etc., and their Photographic Reproduction)" (with demonstration).

MAYER (Graz).—"Demonstration of Microscopical Preparations."

HAJEK (Vienna).—"The Author's Experiences with his Endo-Nasal Radical Operation on the Sphenoidal Sinus."

KANASUGI (Tokio).—"On Laryngeal Disturbances in Beri-beri."

VOHSEN (Frankfurt a. M.).—(1) "A New Method of Treatment for Naso-pharyngeal Catarrh and Vaso-motor Rhinitis"; (2) "Operation for Malignant Tumours of the Tonsil"; (3) "Method of Transillumination of the Frontal and Maxillary Sinuses" (with demonstration of a new instrument).

MOURE (Bordeaux).—"Remarks on Tracheo-thyrotomy."

FEIN (Vienna).—"On the Window Resection of the Nasal Septum."

STERN (Vienna).—Title reserved.

KOSCHIER (Vienna).—"The Operative Treatment of Carcinoma of the Larynx."

SCHIFFERS (Liège).—"Tropho-œdema of the Larynx."

HENNIG (Königsberg).—"The Influence of the German Seas (North and East) on Tuberculosis of the Upper Air-passages."

MAHU (Paris).—"The Use of the Self-retaining Tongue-depressor in Rhino-laryngology."

TAPIA (Madrid).—(1) "Personal Observations on Foreign Bodies

in the Upper Respiratory and Digestive Passages Removed by Means of Direct Oesophagoscopy and Tracheal Bronchoscopy"; (2) "Collection of Wax Models representing the Various Oesophageal Lesions observed in the Author's Clinic."

VEDOVA (Milan).—"On Certain Points Relative to the Development of Nasal Crests in Man."

VEDOVA AND CLERC (Milan).—"Clinical Considerations and Histo-pathological Researches Concerning Hypertrophic Rhinitis."

WEIL (Vienna).—"On the Conservative Treatment of Suppuration of the Accessory Sinuses."

HARMER (Vienna).—"On Paralysis of the Vocal Cords in Operations for Goitre."

CAUZARD (Paris).—(1) "On the Aesthetic Elements in the Surgical Treatment of Frontal Sinusitis"; (2) "Osteo-fibroma of the Superior Maxilla which had Distended the Cavity of the Sinus"; (3) "Extraction of Two Fish-bones, and of a Fish's Vertebra connected with Two Bones, from the Trachea and Larynx of a Child, aged eighteen months, by Killian's method."

KAHLER (Vienna).—"On the Results of Radical Treatment of Accessory Sinus Suppurations."

LÖWE (Berlin).—(1) "On the Free Opening of the Nasal Cavities from the Mouth"; (2) "On the Exposure of the Hypophysis."

LE CLERC (Milan).—"Histo-pathological Reports on some Neoplasms of the Larynx."

PARMI (Milan).—"Histological Characteristics of some Tumours of the Nose and Naso-pharynx."

SCHEIER (Berlin).—"Value of Röntgen Rays in Rhinology."

TEXIER (Nantes).—"On Two Cases of Foreign Body in the Bronchi; Extraction by Inferior Bronchoscopy."

MERMOD (Lausanne).—"Submucous Resection of the Septum and Ozena."

At a quarterly meeting of the Board of Management of St. Mary's Hospital, held on March 19, the following resolution was moved from the Chair and carried unanimously: "That the best thanks of this Board be given to Dr. Robert Henry Scanes-Spicer for the valuable service he has rendered to the hospital for the past twenty years as Surgeon for Diseases of the Throat, and that he be, and is hereby elected, Honorary Consulting Surgeon for Diseases of the Throat."

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF
MEDICINE—LARYNGOLOGICAL SECTION.*Fifth Ordinary Meeting, March 6, 1908.*J. B. BALL, M.D., *President, in the Chair.**Abstract of Proceedings, by Dr. DAN MCKENZIE.*

A CASE OF NECROSIS OF THE ARYTENOID CARTILAGE.

BY MR. HAROLD BARWELL.

The patient, a police-sergeant, when first seen in November, 1906, complained of hoarseness and dyspnoea on exertion. No sign of phthisis could be detected, and no history pointing to syphilis could be obtained. The right arytenoid was swollen and fixed, the right band was so swollen as to hide the cord, and from the right side of the interarytenoid region a white mass projected into the glottis, and suggested by its appearance a necrosed piece of arytenoid cartilage. Mercury and potassium iodide were given by the mouth for a few weeks, but were then discontinued, as they did not suit the patient, and had had no effect on the local condition. This remained practically unchanged up to the present time; the voice improved, but the dyspnoea was often troublesome, though it did not seem ever to be of dangerous severity. The case had been put down for exhibition at the last meeting, but the dyspnoea became worse and he was too ill to attend. He was now considerably better, and suggestions for treatment were solicited.

Dr. CLAYTON FOX thought that there had been a gummatous infiltration of the arytenoid region, and that the cartilage was now necrosed and laid bare. The treatment necessary was to remove the sequestrum with forceps or by laryngo-fissure. If the latter method were adopted the patient would be freed from risk of asphyxia.

Mr. DE SANTI said there was necrosis, and the proper treatment was the removal of the necrosed cartilage. Laryngo-fissure or tracheotomy should be performed because of the risk of asphyxia.

Mr. HAROLD BARWELL said he had been watching the patient now for sixteen months, and although his breathing had become worse quite recently, in the earlier part of the time he had been under observation marked improvement was noted. The exhibitor intended to perform tracheotomy, and after the danger of asphyxia had thus been avoided he would remove the necrosed piece of cartilage by the mouth.

A CASE OF PARTIAL OCCLUSION OF BOTH ANTERIOR NARES BY A CUTANEOUS WEB (CONGENITAL).

BY DR. GEORGE K. GRIMMER.

The patient, a man, aged thirty-two, had had difficulty in breathing through the nose as long as he could remember, and for some years the nose had been completely blocked on waking in the morning. He had never been able to run or take other active exercise without breathing through the mouth. There was no history of a purulent discharge from the nose at any time since birth.

Examination showed the anterior nares to be occluded in rather more than the lower half by a cutaneous membrane situated at the inner extremity of the vestibule. The membrane was thin at its upper extremity, gradually thickening to about one quarter of an inch at its base.

Operation on the right side.—An incision was made at the junction of the web with the septum, straight down to the floor of the nose, keeping close to the septum; on the outer side a similar incision was made, but sloped somewhat outwards; the flap thus formed was not cut off but bent backwards (towards posterior nares), and fastened to the floor of the nose by a single horsehair stitch.

On the left side.—The web was completely burned away with the galvano-cautery. On removing the webs the turbinals were found enlarged, especially the right middle, the anterior end of which was removed; a small portion of the mucous membrane along the lower edge of the right inferior turbinal was cut off with scissors, and the left inferior turbinal was cauterised.

The PRESIDENT said Dr. Grimmer was to be congratulated upon a very successful operation. These were always very difficult cases.

Sir FELIX SEMON observed that in spite of the nasal obstruction this man had never been deaf.

Dr. PETER MCBRIDE also congratulated Dr. Grimmer upon the result of an operation which had proved quite successful, although much simpler than other plans which had been proposed.

Dr. SCANES SPICER, referring to Sir Felix Semon's observation, remarked that deafness was not caused by complete nasal obstruction, but by the catarrhal conditions resulting from incomplete obstruction.

Dr. GRIMMER said he had intended to present the case before the Section prior to the operation. He feared that there was little of interest now that the webs had been removed.

A CASE OF A MALE, AGED THIRTY-SIX, WITH EXTENSIVE CICATRICIAL CHANGES IN PHARYNX AND LARYNX, THE SEQUEL OF SYPHILITIC DESTRUCTION.

BY MR. H. BETHAM ROBINSON.

In the larynx the epiglottis had been destroyed; there was apparent fusion of ventricular bands and vocal cords, so that only one band could be seen on either side, and that on the left side was fixed almost in the middle line. There was some subglottic stenosis, apparently at the level of the upper part of the trachea. There was considerable obliteration of the right pyriform sinus. The exhibitor wondered what was the extent of the stenosis in the trachea.

A SPECIMEN OF ENDOTHELIOMA FROM UPPER PART OF ŒSOPHAGUS AND TRACHEA.

BY MR. H. BETHAM ROBINSON.

During life there was to be seen with the laryngoscope an extensive subglottic growth, with abductor paralysis of both vocal cords; the cords themselves were normal.

This was a unique case, because the growth had begun in the larynx and pharynx and yet at no time was there any enlargement of lymphatic glands.

Sir FELIX SEMON observed that in this case it had been possible to see, during life, the subglottic growth which was causing abductor paralysis. It should be remembered that in cases of abductor paralysis without obvious cause, the reason might be that there was present a subglottic growth which could not be seen with the laryngoscope. Some years ago he had published a case exemplifying this important clinical point.

ONE OF A PAIR OF TONSILS, WHICH WAS APPARENTLY COMPOSED OF A MASS OF PAPILLOMATA.

BY MR. A. R. TWEEDIE.

He had not removed the tonsil himself. The appearance of the papillomatous tonsils while *in situ* had been most curious, just like a pair of big sea anemones with their pink fringes interlacing across the middle line.

Dr. STCLAIR THOMPSON asked whether the specimen had been submitted to microscopic examination, for he had recently shown a tonsil

with papillomatous-looking outgrowths from the follicles, but the microscope had revealed the fact that they were composed of ordinary tonsillar tissue, and so were not true papillomata at all.

A CASE OF MULTIPLE TELANGIECTASES IN A MAN, AGED FIFTY-FIVE, GIVING THIRTY-FIVE YEARS' HISTORY OF EPISTAXIS AND OTHER HÆMORRHAGES.

By MR. E. B. WAGGETT.

The patient had a sister with the same condition. Another developmental defect was to be noticed in the fenestrations present in the anterior faucial pillars.

Hæmorrhage was frequent from the dilated vessels of the lips and cheeks. As regards the blood, the coagulation time was slower than normal. In the nose there were the usual dilated vessels in the area of Kiesselbach.

MR. DE SANTI had recently been consulted regarding a similar case in hospital, in which hæmorrhage from the bowel and from the nose had been observed. The sigmoidoscope had revealed no local bleeding area in the rectum, and he had been unable to find anything in the nose.

DR. WATSON WILLIAMS, referring to the fenestræ in the anterior faucial pillars, said that these were without doubt congenital in origin. There was no history of scarlet fever or of any inflammatory disease in the throat. This was a fact of much importance, since some observers seemed to think that these defects were due to scarlatinal ulcerations.

A CASE OF MUCOCELE OF LEFT FRONTAL SINUS.

By MR. F. J. STEWARD.

The patient, a woman, aged sixty-two, had had proptosis of the left eye and a swelling at the upper and inner angle of the left orbit for eleven years. The size of the swelling varied considerably, decrease in size being associated with muco-purulent discharge from the left nostril. In July, 1899, the swelling was incised and a quantity of muco-pus evacuated; after this operation the swelling did not reappear for three years. The left eye was now markedly proptosed and displaced downwards and outwards, movements being limited especially in an upward direction. There was a swelling of considerable size in the position of the left frontal sinus, the orbital surface of which is firm and elastic, but not bony. The radiogram showed distension of the frontal sinus.

DR. HERBERT TILLEY considered from the skiagram that the protrusion of the eyeball was due to occlusion of the fronto-ethmoidal

cells. He had only seen two cases of true mucocele of the frontal sinus, and in these the anterior wall had been swollen and cracked under the pressure of the finger. In the case now shown a further point in favour of the block being situated in the fronto-ethmoidal cells, and not in the frontal sinus, was that the swelling in the orbital wall occupied a position very far back.

Dr. DUNDAS GRANT asked whether, when the last operation was performed, a communication had been made into the nose.

Dr. FITZGERALD POWELL said that no attempt had been made to remove the middle turbinal. This, he suggested, should be done in order to free the fronto-nasal duct.

Mr. SCANES SPICER said he had observed some swelling in the outer wall of the nose at the ascending limb of the middle turbinal; consequently he agreed with Dr. Tilley that the distension was situated in the fronto-ethmoidal region. He suggested that the tumour should be opened into from the nose, and that the opening should be made just above the swelling to which he had drawn attention. Simple removal of the middle turbinal would, he was convinced, be quite useless.

Mr. STUART-LOW had recently seen a similar case in an elderly man, who in other respects was in perfect health. An operation had been performed—not by him—in order to cure it, and the removal had been carried out in a very “thorough” manner, with the result that the patient died of septic meningitis in fourteen days. In the case under discussion, therefore, he would advise simple drainage of the cyst into the nose. This he thought would be quite sufficient.

Dr. WATSON WILLIAMS thought that there was something more than a simple mucocele here, probably an exostosis.

Mr. WAGGETT had dealt with a similar case through the nose, and the procedure had proved very satisfactory. In taking a skiagram of the frontal sinus, he advised that as the patient lay on a couch with the light under the head he should be made to bend the head well back so that the rays did not require to traverse the thick occipital bone. He thought that the case was one of simple mucocele of the ethmoidal cells, which could with very little trouble be drained through the nose.

Mr. STEWARD said that the previous operation had been performed by Mr. Higgins, of the Eye Department, ten years ago, and had consisted of a simple incision made more for diagnostic than curative purposes. A mucous cavity containing a little pus had been found, and after simple drainage for a few days the wound had been allowed to close. The result was that the woman had remained well for three years, and so satisfied was she that she had expressed the opinion that if any further measures proved equally successful she would be quite pleased. His diagnosis, that the mucocele was in the frontal sinus, depended partly upon what Mr. Higgins had found at the previous operation and partly upon the skiagram, which showed a marked difference in the frontal sinuses—or what appeared to be the frontal sinuses—of the two sides. Still, he admitted that the tumour might be affecting an ethmoidal cell, and not the frontal sinuses. On examining with the rhinoscope he had not been able to detect any swelling in the lateral wall of the nose, and on probing in the affected region no soft area could be felt. The infundibulum seemed to be blocked low down. With regard to treatment, he had made up his mind to enter the swelling from the orbit and to make a free opening for drainage into the nose. If necessary he would remove the mucous membrane and allow the roof of the swelling to form the roof of the orbit.

A CASE OF VENOUS ANGEIOMA OF THE SOFT PALATE.

BY MR. HUNTER TOD.

The patient was a man, aged forty-eight, who sought advice because he found he was beginning to stammer and could not speak distinctly.

There was a large, smooth, globular swelling about the size of an egg in the region of the soft and posterior portion of the hard palate on the left side. It was of a bluish-purple colour. On pressure with the finger it was slightly compressible, and there seemed to be some absorption of the posterior part of the hard palate.

Medially it involved the uvula; laterally the anterior pillar of the fauces and base of the tongue.

It had been, apparently, first noticed two years ago, but no treatment had hitherto been attempted. The treatment now suggested was electrolysis.

Dr. PETER McBRIDE had shown some time ago a painting of a tumour like the one now presented, but without its elevation above the surface. He suggested that there might be another tumour associated with the naevoid condition.

Dr. WATSON WILLIAMS had also had a case similar to this one, which had almost entirely disappeared after some twenty applications of electrolysis.

Mr. FITZGERALD POWELL said that the case was in urgent need of treatment because its situation was one which exposed it to the risk of being wounded. He would tie the external carotid artery and then treat it with electrolysis.

Mr. WAGGETT said these tumours did very well with injections of hot water.

Mr. BEDDOES suggested paraffin injections rather than hot water.

Mr. STEWARD said he supported Mr. Fitzgerald Powell. The external carotid should be tied first of all, because after electrolysis the needle puncture occasionally became septic, and alarming hæmorrhage might arise. He strongly condemned the use of paraffin injections. He had known of a similar case which was treated with paraffin injections where immediate death had followed the injection; at the *post-mortem* a plug of paraffin was found in the circle of Willis.

Mr. HUNTER TOD said that there had been no history of recent increase in the size of the tumour, but speech and breathing had been interfered with. He considered that the compressibility of the tumour negatived the diagnosis of malignancy which one of the speakers had suggested. He agreed that the external carotid should be tied as a preliminary to local interference. The case would be treated by electrolysis at the X-ray Department of the London Hospital under the care of Dr. Morton, and he would exhibit the case at a future date in order to show the result.

A CASE OF LEPROSY SHOWING LESIONS IN SOFT PALATE AND PHARYNX.

BY DR. STCLAIR THOMSON.

The patient was a coloured seaman, from the West Indies, and was exhibited under favour of Sir Malcolm Morris. The photograph shown displayed the great improvement recently undergone. Typical leprous nodules were to be found on the face, forehead, neck, arms, and legs. The leprosy bacillus was present in the nasal mucus. At intervals attacks of pyrexia, the temperature rising to 104° F., heralded the development of fresh outbreaks of nodules, and during these periods bacilli were very plentiful in the nasal secretion, while during the apyrexial interval they are very few in number.

The illness began five years ago with a spontaneous epistaxis and the appearance of a nodule on the wrist. At the present time there was no epistaxis, and the nose showed the signs of atrophic rhinitis. The uvula was atrophied and the soft palate and fauces were infiltrated and inelastic. There was a central radiating scar on the soft palate, which, according to the literature, was very characteristic of leprosy. The epiglottis was large, pale, and overhanging. Lately some areas of anaesthesia had made their appearance. He had been treated with salicylic acid and chaulmoogra oil.

CASE OF EXTREME DEVIATION OF BONY SEPTUM (?).

BY DR. H. J. DAVIS.

A woman, aged twenty-seven, who complained that the left nose could not be cleared of mucus which accumulated in quantity. Almost complete nasal obstruction was present on left side, and there was some collapse of nostril due to old-standing facial paralysis resulting from removal of glands in neck. The obstruction appeared to be due to extreme deviation of bony septum (?). The choanae by palpation appeared to be free. The nasal chamber appeared roomy, but only the finest urethral bougie could be passed into the naso-pharynx. The anterior end of middle turbinate had been removed with no benefit. Opinions were solicited as to treatment necessary to give relief.

The PRESIDENT said that it was difficult to express any confident opinion on the basis of the limited examination possible at the meeting.

He had seen cases of septal deviation or hypertrophy of the middle turbinal in which the obstruction was as extreme as in this case.

Dr. DUNDAS GRANT had seen two cases resembling this one very closely. In these the obstruction was found to be due to a distension of the outer wall of the nose owing to a collection of caseous material in the antrum. The obstruction was removed completely by the clearing out of that cavity. In the case shown he thought there was some bulging of the antrum below, internal to the alveolar process, and the patient had occasional fetid discharge from the nose — features which strengthened his suspicion of antrum disease.

Mr. SMURTHWAITE said that there was some thickening of the septum, not of an oedematous but of a cartilaginous or bony character. A probe passed into the nose went back and then came to an obstacle. He did not think the septum was deviated in the ordinary way, because there was no concavity on the other side. It was more a thickening than a deviation.

Dr. HERBERT TILLEY said that the septal obstruction prevented a satisfactory inspection of the nasal cavity, and until that was removed there could be no certainty as to the cause of the obstruction. He thought that the antrum was probably the source of the muco-purulent discharge from the nose, and he suggested that that cavity was the seat of a catarrhal condition, associated, perhaps, with the presence of a mucous polyp in the antrum, as in a case he had seen with the same kind of discharge. He recommended, therefore, that the submucous resection should first of all be performed, and then that the antrum should be opened and drained into the inferior meatus, a search being made for a polypus.

Dr. PEGLER had also recently seen a case of muco-purulent catarrh, associated with polypus, in the antrum.

Dr. DAVIS said, in reply, he had never thought of the antrum, because there was no more mucous discharge on the affected side than on the other. He intended to remove the inferior turbinal only, and did not favour a submucous resection of the septum.

A CASE OF APHONIA.

By Dr. DE HAVILLAND HALL.

H. M——, aged twenty-four, formerly a soldier. Admitted into Westminster Hospital for *loss of voice*. There was no history of venereal disease; he was an abstainer and non-smoker. At the age of fifteen he had “a sore throat,” accompanied with hoarseness and a dry, hacking cough. The tonsils were found to be enlarged, and were removed. The voice did not return for six to eight months, but ultimately it was completely restored.

While in India in 1905 he contracted malaria. He had a second attack lasting several months, and had not fully recovered when, in March, 1907, he caught a cold on being transferred from the plains to a hill station. The cold was followed by hoarseness and cough. Since then the hoarseness had continued, and he

had an occasional dry, hacking cough. There had been neither hæmoptysis nor night sweats, but the patient had lost weight. There had been no sputum to examine. The temperature was normal.

The vocal cords were only slightly congested, and there was great loss of adduction, more pronounced on right than left side. At the left apex posteriorly the percussion note was slightly impaired, and the breathing was a little rougher than on the right side.

Sir FELIX SEMON said that he looked upon the case as one of functional aphonia, the possibility of the recurrence of which in males should not be forgotten. He had treated a stalwart man for functional aphonia on one occasion.

Dr. HERBERT TILLEY recalled the time when the subject of varicose veins at the base of the tongue was being warmly discussed, and recollected a case of aphonia in a male which was ascribed to this condition and cured by the application of the galvano-cautery to the tongue. It was no doubt a case of functional aphonia.

Dr. DUNDAS GRANT had also seen functional aphonia in a man, a soldier also like the case under discussion. The application of faradism to the neighbourhood of the larynx effected a cure.

Sir FELIX SEMON advised that faradism should be applied to the interior of the larynx and not simply to its "neighbourhood." And the electric application should be decided. Feeble currents were worse than useless, since they removed by familiarity the smart mental shock of a strong current.

A CASE OF LUPUS OF THE LARYNX AND FAUCES IN A YOUNG MAN.

By Dr. DUNDAS GRANT.

There was complete absence of pain. He was decidedly of opinion that the case was one of lupus and not of tuberculosis, as he had at a hurried examination first taken it to be.

Mr. HAROLD BARWELL agreed with the diagnosis of lupus. A similar case recently under his care had cleared up under arsenic and sanatorium treatment. The few nodules which remained he intended to deal with surgically.

Dr. DUNDAS GRANT said he proposed to treat the case with the galvano-cautery. He would then consider the advisability of using tuberculin, which seemed to benefit lupus more than any other tubercular lesion.

A CASE OF APHONIA.

By Dr. DONELAN.

This was in a woman, aged thirty-six, which came on suddenly ten weeks ago, after sneezing. He had seen many cases of aphonia

lately, and suggested that the influenza virus might be instrumental in inducing the disturbance.

Dr. DE HAVILLAND HALL referred to the great importance of administering large doses of strychnine prior to the application of a strong faradic current, because if failure to respond to faradism occurred once, subsequent attempts would be made in vain.

Mr. C. HORSFORD had had a case lasting a year and eight months under his care, in which faradism and strychnine had been employed with no effect. Eventually breathing exercises brought back the singing voice, but not the speaking voice. By means of the plan of making the patient begin in the singing voice and then pass into the speaking voice he had succeeded in effecting a cure.

The PRESIDENT said that patients with functional aphonia were usually able to sing.

Dr. SCANES SPICER said that they all had experienced cases in which the simple introduction of the laryngeal mirror was sufficient to restore the voice. Others might be cured by breathing exercises.

Mr. SMURTHWAITE thought it a good plan to send the patient's friends out of the room and to use moral suasion. He advised the patient to say "e-e-e," in order to obtain the fullest tension of the cords.

Dr. DAVIS thought there was an element of mental perversity in these cases.

Dr. M'BRIDE had found the cold shower-bath succeed where faradism failed. But he had seen a case which had lasted a long time.

Sir FELIX SEMON said that in obstinate cases where faradism had been repeatedly tried, an extra strong current and a threat to increase the dose was generally sufficient to restore the voice. He narrated an interesting case in the person of a lady of great intellectual power.

Mr. MARK HOVELL called attention to the frequent association of uterine disease with functional aphonia. He was acquainted with a patient in whom the combination had existed at intervals for upwards of thirty years.

Dr. BRONNER said that another plan was to place the patient half under chloroform and then to let her come out, forcibly stimulating the vocalisation by rubbing the ribs.

Dr. DONELAN, in reply, regretted that none of the speakers had referred to the point he had raised as to what connection, if any, subsisted between influenza and aphonia. Was it possible that paralysis of the cords was directly induced by the influenzal infection? Possibly it is a myopathic change.

A CASE OF EPITHELIOMA OF THE EPIGLOTTIS AND HALF OF THE LARYNX, EXTENDING ON TO THE PHARYNGEAL WALL.

By Dr. DUNDAS GRANT.

Dr. GRANT asked for the opinion of the Fellows with regard to treatment.

The case was that of a man, aged forty-one, otherwise healthy. There was great infiltration, on which was an ulcer with everted edges. It was extremely hard to the touch, as was also a swelling

continuous with it in the wall of the pharynx below the tonsil. There were enlarged glands on each side. The comparative absence of pain was remarkable, the patient complaining chiefly of the "lump in his throat."

Mr. DE SANTI considered that the disease was too extensive to permit of operation. The deep glands under the sterno-mastoid were involved, and there was really no means of getting them all away. Even Glück's operation was scarcely advisable in this case, because the whole disease could not be removed.

Dr. DUNDAS GRANT was glad to have his own opinion confirmed.

A NEW ADENOTOME DEvised BY FEIN AND RECOMMENDED BY LERMOYEZ.

SHOWN BY DR. H. J. DAVIS.

Dr. DUNDAS GRANT said it was evidently curved laterally for the purpose of keeping the operator's right hand out of the line of vision. He considered that the curvature interfered with the use of the upper incisors as a fulcrum—an action which favoured the complete detachment of the mass of adenoid tissue.

CASE OF A MAN, AGED THIRTY-FIVE, WITH A PAPILLATED NEW GROWTH, OF INTENSE WHITENESS, AFFECTING BOTH VOCAL CORDS.

By Dr. SCANES SMICER.

The case was a very remarkable one.

It had been shown twice several years ago. In the first instance what seemed both clinically and microscopically to be a papillomatous growth from the cord had been removed, but Sir Felix Semon, drawing attention to the sharply pointed extremities of the individual papillæ, had expressed himself as suspicious that the growth would turn out to be malignant.

The man was shown a second time, and again Sir Felix Semon had uttered a warning as to the nature of the growth.

On the present occasion the larynx presented a large growth involving both vocal cords and bearing on the extremities of its papilliform outgrowths white patches, which the exhibitor looked upon as *keratosis*.

Sir FELIX SEMON said that as he had been mentioned as having voiced the opinion that this neoplasm was of a suspicious nature, he would like to say once again, as he said two years ago, that this case was still to be regarded with great suspicion. He advised that a piece should be

removed and examined microscopically, and that the patient should be kept under observation, because, as the man grew older, such a growth, even if it were now innocent, might very readily take on a malignant course.

Dr. PEGLER said that microscopic sections previously taken from this case showed simply heaped-up epithelium, and he advised that the next specimen should be carefully stained for leptothrix.

Dr. McBRIDE thought that the condition was keratosis. In a number of the *Monatsschrift für Ohrenheilkunde* during the last year or two a similar case had been described, and Dr. Logan Turner had shown a case with discrete points of keratosis in the larynx some years ago.

Dr. DUNDAS GRANT said there was a similar case in Krieg's "Atlas of Laryngoscopy."

ROYAL SOCIETY OF MEDICINE—OTOLOGICAL SECTION.

Ordinary Meeting, Saturday, March 7, 1908.

Dr. PETER McBRIDE, *President of the Section, in the Chair.*

Abstract of Proceedings.

PETER MACDONALD, M.D. Aber., Honorary Surgeon, Ear, Nose, and Throat Department, York County Hospital, was elected a member of the Section.

The following cases and specimens were shown and discussed:

DEAFNESS RESULTING FROM EPIDEMIC CEREBRO-SPINAL MENINGITIS.

By MR. H. H. B. CUNNINGHAM.

One every now and again meets a case of total deafness in which the history obtained is that the patient has recently recovered from an attack of cerebro-spinal fever, during which the deafness developed. In view of the fact that the prognosis as regards the hearing in these cases is very bad, and that the methods of treatment at present in vogue do not yield much result, I venture to bring before this meeting notes on two cases, in the hope that some light may be thrown on the treatment of this distressing affection.

CASE 1.—Samuel M——, aged nine, seen May 16, 1907, for deafness.

Previous history.—Admitted to Fever Hospital March 19, 1907. on the sixth day of the disease, the deafness having commenced on the previous day; the onset took place with headache and vomiting; no delirium nor ear symptoms (other than deafness). On admission there was rigidity of the neck; Kernig's sign was present and a purpuric rash; the deafness remained while in hospital. The blood, tested by Drs. Honston and Rankin, gave agglutination and a positive opsonic index to the meningococcus.

Present condition.—When seen, the boy was quite deaf, and could not hear when spoken to, even in a very loud voice. The deafness was so complete that his father had to write on paper every communication he wished to make to him. Therefore tests with the tuning-fork were dispensed with; the watch was tried in contact with the mastoid bone, but the information obtained was quite unreliable.

Both tympanic membranes were normal in appearance, neither showing atrophy, nor thickening, nor perforations; they were, perhaps, slightly retracted. The tonsils were not enlarged, and there were no adenoids.

The boy was bright and intelligent, and readily did anything he was told to as soon as he understood what was required. No giddiness had been complained of, but when the patient walked across the room he was seen to stagger a little to the left, and he definitely edged away towards the left when walking. A week later there was said to be some slight improvement in hearing. He now complained of giddiness when staggering towards the left. This symptom had probably been present before, but was only noticed since it had been sought for. A week later he was said to occasionally hear the noise made by striking a table, but this could not be elicited at the hospital.

June 6.—The giddiness was said to vary in intensity, being more marked in the mornings when getting out of bed, and when he was excited. He also complained of occasional tinnitus in his left ear.

A week later he heard the hooter at the works one night, and he was said to have heard his mother speak to his father once or twice, and to have understood what was said, but he could not hear the voice at the hospital. The giddiness on waking in the mornings was now lessened, also he could walk in a much straighter line, and did not stagger towards the left nearly so much.

June 27. —Can walk well now—almost straight, and does not edge away towards the left. Sometimes he is quick at hearing a

sound, though unable to interpret it; at other times he does not hear any sound at all.

A week later the walking was about the same, and he could apparently hear carts moving on the road occasionally.

July 25.—His general health was very good, and he was bright, and looked intelligent. He did not complain of any vertigo during the day, but still staggered a little on coming downstairs in the mornings. The hearing does not seem to have altered, and he sometimes says he can hear a hooter sounding when none is being sounded.

December 16.—Can walk perfectly straight, and does not complain of any vertigo now. He is said to occasionally hear trams, and on a few occasions has complained of pain and tinnitus in the right ear, but nothing objective found. He speaks in a natural voice, not in the least elevated, and is quick to do anything that he is told to as soon as he understands what is required, but is quite unable to hear anything that is said to him.

For the first fortnight he was put on strychnine (℥ij), afterwards on iodide of potash, 5 grains three times a day, rapidly increased to 10.

CASE 2.—Lizzie C——, aged ten, was brought to the hospital on June 6 with the history that she had been discharged from the Fever Hospital three days previously.

Previous history.—Admitted to Fever Hospital March 6, 1907, twenty-eight hours after onset of the disease, which commenced with headache and vomiting; no delirium; deafness since onset. On admission there was rigidity of the neck, and Kernig's sign was present. The blood tested by Drs. Houston and Rankin was positive to the meningococcus.

Present condition.—She is quite deaf and cannot hear anything, every communication having to be written. She walks straight, but suffers from discontinuous vertigo, the tendency to fall being towards either side; there is tinnitus in both ears; the tympanic membranes are normal in appearance, perhaps slightly indrawn on the left side.

A week later the vertigo was only occasionally complained of, the tendency to fall now being in the forward direction; it is more marked in the mornings on rising from bed, when she is decidedly inclined to fall forwards. She was said to have heard a hooter on the previous evening, and to be able to hear the noise of a loud knocking at the door.

June 24.—The vertigo has decreased considerably, and patient

is said to be able to hear words occasionally, but could not hear the voice when tried at the hospital. She was treated with gradually increasing doses of iodide of potash up to 8 grains three times a day, but was not seen after June 24.

The points of interest in these cases are :

(1) The vertigo, present in both cases, and in each of which this symptom was more marked in the mornings when arising from bed.

(2) The deafness, which practically showed no improvement.

These two cases do not show anything of unusual interest, only the hopeless result of aural complication in epidemic cerebro-spinal meningitis. What is the cause of this deafness? The labyrinth, the auditory nerve, or the brain itself may be implicated. Politzer, in his text-book on otology, quotes several cases in which purulent infiltration of the labyrinth was found on *post-mortem* examination, also cases in which degeneration of the eighth nerve was found. At the Manchester Medical Society last year Orr showed specimens of cranial nerves from a fatal case of cerebro-spinal meningitis, in which the reaction of degeneration was present in the third, fourth, fifth, sixth, seventh, and eighth nerves, and pointed out that it was only present in the intra-medullary portions of these nerves.

The sudden onset, and especially the disturbance of equilibrium well marked in Case 1, would point towards implication of the labyrinth. But Sir Victor Horsley, in his address to the Otological Society in 1905, showed that disturbance of equilibrium may be caused by new growths in the eighth nerve by lesions in the medulla, cerebellum, and the area of orientation or posterior two thirds of the temporal lobe. The lesions giving rise to symptoms in these cases, however, are usually deep-seated, and, therefore, are not due to cerebro-spinal fever. So implication of the auditory nerve or of the labyrinth must be considered the cause of the deafness. Both my cases were treated with iodide of potash, but so far as the deafness was concerned, without result. Dr. Gardner Robb, to whom I am indebted for the notes from the Fever Hospital, also informs me that before using Flexner's and Jobling's serum with such success, out of sixty-eight recoveries five were deaf, and since using it, out of twenty-two recoveries one is deaf; so it has not much effect on this complication.

Therefore I would ask this Society what treatment can we adopt, or in what way can we ameliorate the condition of these unfortunate patients? Should the treatment of the deafness be

commenced during the course of the fever itself, or, if not, and which more concerns the aurist, what can be done for these cases, which, after recovery from the fever, consult the aurist for the deafness?

PURULENT OTITIS MEDIA WITH DEEP ULCERATION OF EXTERNAL MEATUS IN A CASE OF SECONDARY SYPHILIS.

BY DR. ADOLPH BRONNER.

Mr. X——, aged twenty-eight, has had a sore throat for four weeks. Two weeks ago he had slight earache for one day, and since then both ears have discharged, and during the last six days they have been sore and painful. There is perforation of both drums and purulent discharge. The lower halves of both external meatuses show deep pouched-out ulceration with grey surface. There are mucons patches on both sides of the pharynx, and there is a typical specific skin rash and a well-marked indurated chancre in the foreskin.

Ordinary watch heard at sixteen inches; tuning-forks nearly normal.

This case is interesting from several points of views. Purulent otitis media is very rare in cases of secondary syphilis of the pharynx. Deep ulceration of the meatuses is more common in tertiary than in secondary syphilis. In this case the discharge from the middle ears probably irritated the ulcers. Under anti-syphilitic treatment and the local application of iodoform and boric acid, and 5 per cent. chromic acid, the local symptoms soon cleared up, without causing much deafness. The internal ears were not affected.

Dr. DUNDAS GRANT had generally found condylomata of the meatus quite unmistakable, but in one case the diagnosis was only made when a syphilitic patch was found on the skin.

CROSSED ABDUCENS PARALYSIS IN A CASE OF CEREBELLAR ABSCESS.

BY DR. D. R. PATERSON.

J. R——, a collier, aged eighteen, admitted on April 20, 1907, complaining of pain in the right ear and back of head for five weeks; discharge from right ear for two weeks, and still later of vomiting and diplopia. He was somewhat drowsy, and lay with his head well retracted. He could answer questions intelligently, and stated he noticed the double vision when on his way to

hospital. The pulse was 54. There was foetid discharge from the right ear, which contained granulations. The left ear was normal. Nystagmus, increased on looking to either side, was present. There was optic neuritis, and distinct weakness of the left external rectus. At the post-antral operation, done twelve hours later, the outer antral wall was very thick and hard, and the antrum contained cholesteatomatous *débris*. Its posterior wall was partly deficient, exposing the lateral sinus and part of the posterior fossa, and it was further cut away as far as the posterior semi-circular canal. Through the space so enlarged the cerebellar was explored, and about 1½ dr. of pus evacuated. The sinus was exposed for some distance and appeared healthy, and the middle fossa of the skull was explored with a negative result. A drainage-tube was inserted in the abscess cavity. On April 25 he was much brighter; he could move his head better and slightly flex his neck. He still had diplopia on looking to the left, and a definite squint. On May 5 Mr. Russell Thomas again examined the eyes, and reported there was still double vision on looking to the extreme left, and limitation of the movement of the left eye outwards. The optic discs were very swollen, and small hemorrhages were seen. The patient made an uninterrupted recovery, and on his discharge on June 5 the movements of the left rectus was quite normal, though some degree of optic neuritis remained for some time.

MR. HUNTER TOD narrated a case of crossed paralysis of the external rectus in which no other associated condition was found except chronic suppuration of the middle ear.

BRANCHIAL SINUS LEADING FROM NECK INTO EXTERNAL AUDITORY MEATUS; SINUS EXCISED.

BY MR. FAGGE.

F. M——, aged three and a half, was treated for chronic left otorrhoea for two years. He also had a sinus in the neck on the left side, which his father said discharged alternately with the ear. When seen the left membrane and meatus seemed normal. Extirpation of sinus advised. It was considered to be due to an old tuberculous gland. On exploring the sinus it was found to extend upwards, and was dissected out until a pedicle connected it with soft parts on vaginal process. In freeing this, left auditory meatus was opened. Sinuses were healed, and ear after a few days was dry. The membrane is normal.

MR. MACLEOD YEARSLEY had had a case presenting similar features, but in which there was a dermoid cyst containing hair.

EPITHELIOMA OF MIDDLE EAR; TRAUMATIC.

BY DR. W. MILLIGAN.

S. W——, policeman, aged forty-five, admitted to hospital complaining of great pain in right ear and continuous discharge of fetid blood-stained pus.

Ear disease attributed to injury received nine months previously; no history of any ear trouble prior to that date. Large mass of fungating granulation tissue in meatus. Sequestrum in mastoid area felt with probe. Morphia administered. No relief. Microscopic examination of granulation tissue shows a squamous epithelioma. On account of severe pain mastoid opened, fungating mass of granulations scraped out and sequestrum removed; no relief. Ligature of external jugular (Mr. H. Lund).

Death two days later. *Post-mortem* showed middle ear and adjacent mastoid area entirely destroyed. Intra-cranial abscess (size of a pigeon's egg) found in anterior position of right temporo-sphenoidal lobe. No erosion of roof of antrum or tympanum.

Dr. DAX McKENZIE referred to the frequency with which malignant disease apparent to be excited by injury.

Dr. MILLIGAN thought it possible, though by no means certain, that in this case the injury was the cause, and considered this was all that a medical witness in court would be justified in saying.

CASE OF RIGHT LABYRINTHINE SUPPURATION; OPERATION.

BY MR. MACLEOD YEARSLEY.

Boy, aged eight. Deaf from measles at age of one year. Very foul discharge both ears, often bloody. Right radical operation February 6. Erosion into external semi-circular canal. Stapes absent. Fenestra ovalis carious at lower margin. Vestibule laid open by removal of wall below fenestra ovalis. Cavity of labyrinth cleansed with hydrogen peroxide, and swabbed out with formalin. Left radical mastoid February 13.

SPECIMENS AND PHOTOGRAPHS OF PATHOLOGICAL CONDITIONS FOUND IN THE LABYRINTH.

BY DR. ALBERT GRAY.

(1) Portions of the membranous labyrinth from a case of suppurative disease of the middle and internal ear.

(2) Deposit of calcareous salts in the region of the organ of Corti in a case of oto-sclerosis.

(3) Deposit of calcareous salts in the vestibule. During life the patient had suffered from giddiness and a slight degree of deafness.

(4) Deposit of calcareous salts in the semi-circular canals. During life no symptoms were present.

(5) Deposit of calcareous salts in the canals. No symptoms were present during life.

(6) Membranous labyrinth from a deaf-mute. The results of examination of the labyrinth are negative.

(7) Membranous labyrinth from a deaf-mute. The results on examination of the labyrinth are negative.

Dr. GRAY said that in these pathological cases the membranous labyrinth (including endosteum) was of greater thickness than the normal. In reply to Mr. Lake, he said there was room for doubt as to the nature of the deposits, although he thought it was calcareous.

HISTOLOGICAL PREPARATIONS OF THE HUMAN LABYRINTH.

By MR. SYDNEY SCOTT.

(1) Sections of the vestibule with the utricle, ampullary nerves, crista ampullaris.

(2) Sections of the vestibule, saccule, membrana secundaria.

(3) Pathological sections of human labyrinth:

(a) Sections through cochlea in a case of acute diffuse labyrinthitis.

(b) Sections of cochlea in chronic granulating labyrinthitis.

(c) Section of membranous ampulla of external semi-circular canal in recent circumscribed labyrinthitis.

Dr. URBAN PRITCHARD expressed his admiration of the specimens, and Mr. Scott in reply to a general request, promised to describe to the Section the details of the mode of preparation at a future meeting.

SPECIMENS OF THE TEMPORAL BONE ILLUSTRATING CERTAIN OPERATIONS.

By MR. C. E. WEST.

(1) Complete ablation of the labyrinth.

(2) Double vestibulotomy, with removal of cochlea.

(3) Double vestibulotomy, without removal of the cochlea.

(4) Inferior vestibulotomy, with partial removal of the cochlea.

(5) Superior vestibulotomy.

(6) Superior vestibulotomy, with complete removal of semi-circular canals.

TWO CASES OF UNILATERAL NERVE-DEAFNESS.

By DR. DUNDAS GRANT.

One was an elderly man with vertigo, but the vertigo was proved to be due to paralysis of one of the ocular muscles with diplopia on looking upwards and outwards; inability to walk straight with the affected eye alone open, and relief from unsteadiness when it was shut. The other was a young girl with hemi-anæsthesia, contraction of the field of vision, etc. In the former case there was probably *two syphilitic lesions*, and in the latter *hysteria*. The cases were shown with a view to their discussion at the next meeting.

A CASE OF "RADICAL" OPERATION WITH PRESERVATION OF THE MEMBRANE AND OSSICLES FOR CHRONIC SUPPURATION OF THE MIDDLE EAR, CHIEFLY AFFECTING THE ATTIC, WITH MODERATE HEARING.

By DR. DUNDAS GRANT.

The after-treatment was rather prolonged, but recovery was hastened by the removal of adenoids, and the hearing was considerably better than before the operation.

A PAPER ENTITLED, "THE OPERATIVE SURGERY OF LABYRINTHITIS, BASED UPON AN EXPERIENCE OF THIRTY CASES."

By MESSRS. C. ERNEST WEST, F.R.C.S., AND SYDNEY SCOTT, M.S., F.R.C.S.

In an introductory section the authors traced the history of the rise of labyrinthine surgery, and made acknowledgment to the various writers who have contributed to the subject.

The necessity of an exact knowledge of the anatomy of the labyrinth was emphasised, and a detailed description, based upon personal investigation of the membranous and bony labyrinth, preceded the main body of the paper.

Among other points were mentioned the narrowness of the isthmus between the anterior and posterior sections of the bony labyrinth, such that inflammatory processes frequently became localised in one or other portion of the labyrinthine cavity

and arrested. Another point was the tracing of a vein in infants from the tissue in the subarcuate fossa through an aperture on the upper surface of the petrous bone into the petro-squamosal sinus. The close relation between the lower limb of the posterior semi-circular canal and the jugular fossa in infants, and also in those adults in whom the fossa is very deep, was also noted. The external auditory meatus was described as lined completely by a sleeve of dura mater and arachnoid, whilst its lumen is occupied by a prolongation of the subarachnoid space, in which the seventh and eighth nerves lie. There is no definite continuation of this space along the seventh nerve in the aqueduct, but the nerve is surrounded by a quantity of loose connective tissue, while the dura mater becomes continuous with the lining membrane of the canal. The spaces of this areolar meshwork might thus be regarded as continuous with the subarachnoid space, though the meshes are close enough to prevent any free escape of cerebro-spinal fluid if the sheath of the nerve is opened. The short canals through which the branches of the vestibular nerve pass into the labyrinth would seem to contain direct prolongations of the subarachnoid space, as when the nerves were avulsed in curetting the vestibule free escape of cerebro-spinal fluid was the rule. Under such circumstances the subarachnoid space was virtually opened by the operation, and absolutely free drainage was essential to safety.

The authors next considered the morbid anatomy and course of infective disease of the labyrinth, mentioning the infective organisms found, the paths of invasion to the labyrinth from the middle ear, the changes produced in the labyrinth, and the mode of spread of infection from the labyrinth to the interior of the cranium. The path of infection from the middle ear was shown to be most frequently through the external semi-circular canal, while in other cases invasion took place through the oval window, the promontory, or the fossula rotunda. Among the antecedent middle-ear conditions, cholesteatoma complicating chronic suppuration was shown to be the most important. In some cases infection of the labyrinth was of the acute suppurative type; in others, chronic and progressive, with the formation of granulation tissue within the labyrinth. The special danger of labyrinthitis was shown to lie in the extension of infection along the nerves in the internal auditory meatus, with the production of meningitis, more rarely cerebellar abscess, and in one case, acute internal hydrocephalus.

Under the heading of "Symptomatology," it was pointed out that many cases of gross labyrinthine involvement present a total absence of any characteristic symptoms, though, as shown by the record of cases, these by no means escape the special dangers of this complication of middle-ear disease.

Where symptoms declare themselves, vertigo of a definite type, most frequently horizontal, is almost always present. As important though subsidiary symptoms were mentioned vomiting, tinnitus, and deafness, while in the acute cases local pain, headache, and general constitutional disturbance were marked features.

Symptoms, morbid anatomy, and operative results alike indicate the opening and adequate drainage of the vestibule as of the first importance. The tympanic aspect of this cavity is subdivided by the course of the facial nerve into upper and lower segments. The vestibule may be opened either above or below the facial nerve. In the superior opening entrance is made along the outer limb of the external semi-circular canal and its ampulla, the ampullary end of the superior canal is opened and the roof of the vestibule removed. This operation the authors have named *superior vestibulotomy*. From their own experience and from that of other operators they were led to regard this procedure as inadequate if carried no farther.

They discarded the operation after performing it in two cases, one of which proved fatal, owing to the incomplete drainage afforded.

In the inferior opening, that portion of the outer wall of the vestibule extending from the upper border of the window to the upper border of the fossula rotunda is removed. This operation is called by the authors *inferior vestibulotomy*. It may be extended frequently with advantage by the removal of the outer wall of the first half-turn of the cochlea, a procedure which affords freer drainage.

Where the superior opening of the vestibule is necessitated by the locality of the disease it should be combined with inferior vestibulotomy. This double opening of the vestibule the authors have named *double vestibulotomy*. Superior vestibulotomy may be extended by the complete removal of the semi-circular canals, inferior vestibulotomy by the total removal of the cochlea. The authors have reserved the term "extirpation of the labyrinth" for the complete operation obtained by a combination of both these procedures. It is a procedure which is only called for by the most extensive disease.

In cases of local disease of the external semi-circular canal, without evidence of involvement of the ampulla or vestibule, local curettage was sometimes found to be adequate treatment.

In an important group of cases, sequestra of the labyrinth were discovered during operation on the middle ear. Such sequestra may be deeply buried in the petrous, and present great difficulties in their removal. The following special tests were dealt with as of value, in eliciting evidence of labyrinthine disease: (1) Rombergism; (2) gait and walking along a straight line; (3) execution of certain movements demanding precise co-ordinate control; (4) nystagmus elicited by rotation.

The indication for operation on the labyrinth was considered to be the evidence of infective labyrinthitis, resting either upon obvious symptoms and the response to special tests, or upon the discovery of gross labyrinthine disease during the course of the radical mastoid operation.

Under results the authors were able to say that when vertigo or other labyrinthine symptom was present, complete relief was in all cases obtained by the operation. There was no case of permanent facial paralysis. In one case only was it possible to ascribe a fatal result to the operation on the labyrinth; this was the case above mentioned under "Superior Vestibulotomy."

Dr. MILLIGAN referred to the comparative rarity of labyrinthine suppuration in acute purulent median otitis, in fact, he himself having only seen two cases, one of which was the result of scarlet fever and the other of measles. He considered cholesteatoma a very dangerous condition from its tendency to lead to labyrinthine suppuration. With regard to operations, superior vestibulotomy was more dangerous than the inferior. Coming to the question of the frequency of this condition he asked for the experience of members, and he himself put it down at about 1 per cent. of cases of chronic suppuration of the middle ear. In operating he had a preference for a long burr under good illumination and adrenalin. In his experience the field of infection had generally been the external semi-circular canal, and in some cases the bone alone was eroded, the membranous part appearing infected.

Mr. WAGGETT enquired as to the precautions to be taken with regard to the modiolus.

Dr. GRAY drew attention to the fact that many patients survived in spite of the presence of labyrinthine deafness and suppuration.

Professor URBAN PRITCHARD confirmed the statement as to the spongy nature of the modiolus of the cochlea.

Dr. DUNDAS GRANT asked whether the authors had found loss of hearing for the highest pitched tones of Galton's whistle of use as an evidence of disease of the labyrinth, as stated by Oatmann and others.

Mr. HUNTER TOD congratulated the authors heartily, not only on their paper, but on their having been able to collect so many cases. He noticed that the paper only dealt with suppurative lesions, as the

opening of the semi-circular canals for vertigo in non-suppurative cases was not discussed. The cases might be divided into three groups: tuberculous suppuration, acute suppuration, and chronic suppuration. All had seen tuberculous disease of the mastoid involving the labyrinth, and in these cases it was usually sufficient to curette out gently the vestibule or the cochlea. Frequently facial paralysis already existed, and the technique of the operation was therefore rendered more easy owing to the fact that irreparable damage to the facial nerve had already taken place as a result of the disease. Many of such cases did very well. Mr. Todd's experience of acute suppuration of the labyrinth was limited to that occurring in children, and in which death occurred as the result of meningitis. With regard to chronic suppuration of the labyrinth associated with chronic mastoid disease, Mr. Todd said he could not help being surprised that the authors had been able to collect together so many cases. Exclusive of the simple Schwartz's operation, he had performed at least 350 complete operations on the mastoid process during the last seven years. This operation had only been done when all other means had failed to cure, that is, after the usual conservative treatment: after frequent removal of polypi; and in many cases where ossiculectomy had also been performed. Although whilst performing these operations he had always made a point of inspecting the inner wall of the tympanic cavity and the region of the semi-circular canals, especially in cases where there had been vertigo and internal ear deafness, yet with the exception of superficial caries of the external semi-circular canal, which was not infrequently met with, he only remembered three cases in which there was evidence of any sign of disease of the labyrinth. In these cases he had contented himself with curetting away the area of granulations, and never felt justified in doing anything further. He quite admitted that he might have missed cases of labyrinthine inflammation, but the consequences did not seem disastrous. He could merely state that in all cases of uncomplicated mastoid disease on which he had performed the complete operation he had never had a fatal result. He admitted that in those cases in which healing after the operation was not satisfactory, the continuance of the suppuration was almost invariably due to bone disease about the region of the promontory and floor of the tympanic cavity; but even in these cases healing eventually usually took place as a result of treatment. Although he considered the paper an admirable one, he thought the danger might rise of surgeons tending to operate too frequently on the labyrinth. From his own experience he would say that the less that was done the better, and that operation on the labyrinth should be performed only when there were very definite symptoms of a suppurative lesion being present.

Mr. RICHARD LAKE thought it should be kept in mind that recovery was the rule before the era of labyrinthine surgery. The operation was not particularly difficult, and he was accustomed to make his approach from behind the facial nerve. He raised the question as to the value of opening the cochlea.

Mr. FAGGE agreed with Mr. Todd as to the rarity of cases calling for surgical opening of the labyrinth.

Mr. KELSON asked whether these operations had thrown any fresh light on the physiology of the labyrinth, and what was their effect on the hearing?

Dr. PATERSON enquired as to the members' experience of the use of Barany's caloric test and as to the indications of erosion of the external semi-circular canal. He had himself performed inferior vestibulotomy.

The PRESIDENT said it was usual in labyrinthine vertigo for surrounding objects to appear to rotate from the sound side to the affected one. Aural nystagmus was increased on looking to the sound side, cerebellar nystagmus on looking to the diseased one. He quoted Barany's experiment with heat and cold, in which, if the labyrinth was normal, syringing with water distinctly colder than the body caused nystagmus towards the opposite side, while with hot water the nystagmus was towards the same side. A negative result indicated inaction of the vestibular apparatus. He drew attention to Zeroni's paper on post-operative meningitis, and dwelt on the danger of scraping granulations on the inner wall of the tympanum.

Dr. DONELAN referred to Gradenigo's monograph on labyrinthine suppuration.

Mr. WEST, in replying, stated that it was not necessary to remove the whole of the semi-circular canals except in some cases of tuberculosis. It was easy to destroy the nerves in the vestibule, and this was sufficient. Persistent vomiting with the "labyrinthine" symptoms after the radical operation was sufficient indication for opening the labyrinth. Drainage through the internal auditory meatus was a desirable thing, and it was impossible to open the cochlea without at the same time opening the internal meatus and effecting this. Facial paralysis was more often the result of forcible plugging than of operative injury. He held that the radical mastoid operation was attended with risk if the labyrinth was involved. He congratulated Mr. Tod on his immunity. The number of cases requiring operation on the labyrinth amounted to about 1 per cent. of all cases of chronic suppuration of the middle ear. Increasing loss of bone conduction was noted in one of his cases of caries of the promontory. In reply to Dr. Gray, he dwelt on the call for free drainage, and stated that complete evacuation of the cochlea was seldom required, opening of the anterior half of the first turn being usually sufficient. The apparently exceptional frequency with which he had had to operate on the labyrinth (he had operated on seven cases in the first six weeks of this year) was explained by the fact that cases of severe vertigo had been sent to him expressly with a view to the operation being done. He narrated a case in which death was attributable to abstention from this operation. In paralyzing lesions vertigo ceased; this might be called the "ablation phenomenon." There remained at first an inability to stand on the leg of the same side with the eyes shut, but this symptom passed off after a time and only recurred when anything interfered with the general health of the patient.

Mr. TOD desired to say that he was afraid Mr. West had misunderstood him. He had not said that he invariably got an immediately successful result as a result of the complete mastoid operation. The point he wanted to emphasise was that in uncomplicated mastoid disease with no intra-cranial symptoms he had never had a death as the result of the operation, although he was quite prepared to admit the possibility of caries of the promontory, or chronic suppuration of the labyrinth, being the cause of failure of the complete mastoid operation to cure the suppuration. The other point he wanted to make was this, that although in spite of the mastoid operation complete healing did not take place, and although it might possibly be due to labyrinthine disease which he had not recognised, even if this were the case no serious symptoms occurred, and as the result of proper treatment it was very rare that complete cure was not eventually obtained.

Mr. SCOTT referred to the infrequency of labyrinthine involvement in

acute cases. Only one of theirs was acute. On the other hand, 18 per cent. of Hunsberg's cases were acute.

PROCEEDINGS OF THE PARISIAN SOCIETY OF LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

Meeting held on February 18, 1908.

The President, DR. WEISSMANN, in the Chair.

SEVERE PARASYPHILIS OF THE LARYNX.

M. A. CASTEX showed a patient whom he had had under observation for a month. It was a case of laryngeal affection in a man, aged forty-four, which, according to his own statement, dated from two years back. The epiglottis, the vestibule of the larynx, and a portion of the base of the tongue were involved in masses of greyish fungosities, which rendered the part almost unrecognisable, and presented here and there necrotic spots. The patient had an indurated sore in 1887. M. Castex thought that the diagnosis ought to be parasyphilis of the larynx, but from the aspect of the lesions he feared there might be a transformation into epithelioma, all the more because he had recently observed this complication in another case of parasyphilis of the larynx. The treatment had, up to the present, consisted merely in antiseptic inhalations, but if the idea of epitheliomatous transformation was confirmed, he would proceed to tracheotomy in order to avoid the risk of sudden death.

NASO-PHARYNGEAL POLYPUS.

M. CAUZARD brought forward a patient who had been operated on in 1900 on account of naso-pharyngeal polypus by M. Le Bec, and again operated on by himself at the beginning of 1902 and the end of 1903. On this last occasion the left maxillary antrum was trephined for the purpose of exploration, but it contained nothing. M. Cauzard had shown the patient to the Society in 1904, when he appeared to be on the way to recovery. At the present time there was a prolongation into the left nasal fossa adhering to both walls in the region of the choanae. There was a transverse fibrous bridge crossing the posterior border of the vomer. The patient had been for some time subject to repeated

hæmorrhages which were of some seriousness on account of the anæmia which resulted from them. The exhibitor asked the opinion of his *confrères* with regard to the indication for the next operation, and as to the mode of operation which they would recommend. His opinion was that he should open the nasal fossa by the anterior route, and he was inclined towards Monre's method of lateral rhinotomy.

M. GEORGES LAURENS said he had operated on a certain number of cases analogous to the one which had just been shown, that is to say, cases of naso-pharyngeal polypus of small size, retro-choanal in position, with prolongations into the nose and sometimes into the sinuses. In similar cases the method of Doyen was not admissible and Monre's para-lateral nasal incision left a cicatrix; sub-labial rhinotomy afforded sufficient room and an easy access into the nasal fossa. In some cases M. Laurens had added to this opening a temporary or permanent resection of the ascending process of the superior maxilla and greatly increased the size of the osseous opening. He considers this the method of choice for access to small naso-pharyngeal polypi with prolongation into the nose.

M. FURET had recently operated on a naso-pharyngeal polypus with the assistance of M. Lubet Barbon; the operation was done under chloroform and was very simple as carried out according to Lubet-Barbon's method. Avulsion of the tumour by means of forceps had seemed easy, and the operative hæmorrhage had been moderate. For two days the state of the patient was entirely satisfactory, but on the morning of the fourth, after a slight cough, a severe hæmorrhage appeared, during which it looked as if the patient was about to succumb. M. Furet saw him half an hour later, almost bloodless and semi-comatose, with a feeble pulse of 140. Serum was injected and in the evening the temperature was 104° F. At the present time the patient was much better with a little colour in his face, the temperature being 99° F. and the pulse 96. The interest attached to this case was that we must in future be prepared for secondary hæmorrhage in operations upon naso-pharyngeal polypi.

M. CASTEX had operated four years before on a youth, aged sixteen, who had a naso-pharyngeal fibroma with prolongation into the right choana. He appeared to have been quite cured, but suddenly, a month ago, the right eye was pushed out of the orbit and was so damaged that it was necessary to enucleate it. M. de Lapersonne, who operated on the case at the Hôtel Dieu, found in

the fundus of the orbit a fibrous or fibro-sarcomatous mass without any connection with the nasal fossa. This was, therefore, recurrence at a distance.

ACUTE FISTULOUS FRONTAL SINUSITIS, OPERATED ON "À FROID";
RESECTION OF THE WHOLE ANTERIOR PLATE OF THE FRONTAL
BONE AND OF THE INTERNAL PART OF THE TWO ORBITAL
MARGINS; RECOVERY.

M. CAUZARD reported to the Society a case of fistulous frontal sinusitis in a woman, whose photograph he showed, made one year after the resection of the whole of the anterior plate of the frontal bone. Subsequent to a violent coryza, she had right-sided headache with frontal and palpebral œdema, and had a high degree of pyrexia. After thinking of erysipelas, the surgeon made an incision some days later below the orbital margin; there was an escape of fœtid pus, which established the diagnosis of frontal sinusitis. M. Canzard, being called to see the patient, found pus in the nasal fossa and opacity of the maxillary sinus, and he made a diagnosis of fronto-maxillary sinusitis with perforation of the orbital or frontal wall, and proposed, in the first place, an incision through the eyebrow and opening of the sinus. He then incised the infiltrated tissues and scraped the anterior wall, which was perforated and necrosed, explored the sinus, which was found to be of a great size, and which he drained at the extremity of the eyebrow. The sinusitis was thus allowed to settle down preliminary to a radical operation, which M. Canzard carried out a fortnight later. He was obliged, instead of doing a Killian's operation, to resect not only the necrosed anterior and orbital walls, but the orbital margin at its internal two thirds with the orbital apophysis of the frontal bone and the nasal floor. The exploration of the inter-sinusal septum revealed a perforation, and the left sinus was found full of granulations; it had to empty itself through the right sinus. M. Canzard then thought it was necessary to resect the whole of the frontal bone, all the more as the resection on the right side was very extensive and would have left a noticeable asymmetry of the face. He therefore resected the whole of the anterior wall of the left sinus by the nasal floor of the two sinusses and the internal third of the left orbital margin. A drain was left for twenty-four hours at the root of the nose. The maxillary sinusses was then operated on according to the "Caldwell-Lue" method. Twelve days later the patient might be looked upon as cured. A year had since passed

and the good condition had been maintained. The photographs showed a concave forehead, but certainly the disfigurement was less unsightly than if the anterior table of the left sinus had been preserved, because one would then have had one of these ugly asymmetrical depressions which are left by the "Kuhnt-Luc" operation on large sinuses. The complete symmetry of the disfigurement rendered it less unpleasant.

PRESENTATION OF CASES.

M. CAUZARD showed a little girl, aged eight, in whom he had performed submucous resection of the septum, and who was the subject of *hæmophilia*. For twenty-four hours there had been hæmorrhagic oozing, which disappeared under the use of chloride of calcium. A good functional result followed.

M. GROSSARD showed (1) *A Case of Complete Adhesion of the Soft Palate to the Pharynx* in a girl, aged nineteen, with hereditary syphilis, affected two years previously with sore throat characterised by ulceration badly treated, because the patient was not at once put under the iodide treatment. The sore throat lasted eighteen months, during which nasal respiration became more and more difficult and at last was completely destroyed. At the present time there was complete adhesion of the free borders of the soft palate to the wall of the pharynx, and almost complete adhesion of the posterior surface of the palate except at the level of an ulcerated perforation, round which the extremity of a small bent probe could be introduced.

(2) *A Case of "Wolf Face."*—A man, aged fifty-eight, with nasal syphilis which had led to the disappearance of the septum, the turbinates, the hard palate, and to the falling in of the soft parts of the nose. The disease had started in 1904 with a purulent nasal discharge which was treated by means of intra-muscular injections. This discharge was accompanied by perforation, and then complete destruction of the septum. The suppuration showed itself next at the anterior part of the hard palate, which soon came away spontaneously, the patient removing it himself in three parts. The superior maxillary bone was destroyed in great part, the whole of the alveolar margin having disappeared. The soft parts of the nose and of the upper lip had fallen in; the patient could now only speak with great difficulty, and was obviously unable to masticate food.

(3) *A Tumour of the Ascending Process of the Superior Maxilla.*—

A child, aged thirty-four months, with healthy father and mother, fed at the breast until the age of seventeen months, having commenced to walk at fifteen months, had at the level of the ascending process of the right superior maxilla a little tumour of the size of a hazel-nut. The child was affected with tuberculous osteitis of the right humerus with the elimination of sequestra. M. Grossard was of the impression that the swelling might be a cold abscess, but exploratory puncture being negative the patient was brought forward for diagnosis.

M. MAHT had operated several years before on a young woman for a complete adhesion of the soft palate. Without dwelling upon the operative procedures, which ought to vary according to the cases but which are never simple, he drew the attention of his colleagues to the difficulty which had to be overcome in preventing the formation of new adhesions, which reproduced themselves with extreme rapidity after detachment in spite of repeated dilatations. He thought it was indispensable to administer at the same time specific treatment, and above all, iodide of potassium.

M. KOENIG, in a case on which he had operated the previous year, and in which the adhesion was, perhaps, not so profound as in the one shown, brought about a cure by introducing a fine bistoury, elbowed and probe-pointed, made especially for this case, into a small opening which existed on the right side, and by cutting to the right and to the left as far as he was able to go. He thus made an opening into which he could pass two fingers. The patient could now breathe well, for the adhesion had not recurred, thanks to the depth of the pharynx and to the absence of all gummatous infiltration at the time of the operation.

M. CHATELLIER showed the following patients:

(1) A child, aged eight and a half, on whom he had, at the age of five years, made successively a petro-mastoid exenteration on an old-standing foetid suppurative otitis, then four punctures into the brain and four into the cerebellum. It was supposed that there was a cerebral abscess, but this did not exist. The disturbance arose from otitic septicæmia, which had got well.

(2) A young girl whom he had treated for two years on account of an old foetid suppurative otitis. After an extensive radical operation, which had left the dura mater bare, he had subsequently to carry out drainage of the lateral sinns, which had thrombosed and suppurated; then drainage of the brain, on account of a large foetid intra-cerebral abscess, into which there had to be introduced

three diverging drainage-tubes, of which some were 11 cm. in length. The patient had complete hemiplegia on the side operated on, and there was a large hernia of the brain. Ultimately complete recovery took place at the end of a few months. At the present time the patient was in perfect health and worked regularly.

(3) A patient showing a suppurative mastoiditis which had opened spontaneously by a fistula in the auditory meatus. The patient, who was diabetic and showed no sign of acute disturbance, was submitted to the *régime* treatment suitable for diabetes, in order that the operation might be carried out under the best conditions, but under the influence of this purely medical treatment he recovered completely without operation.

(4) A patient who had had, in his earlier years, suppuration from the ears, and who presented himself at the hospital on account of a foetid discharge from the right ear and an occipital fistula. A probe introduced into the fistula reached the mastoid process and touched bare bone. Bezold's mastoiditis was first thought of. The patient being much infected and full of *pediculi*, it was necessary to receive from the family authority to cut the hair. After the necessary steps had been taken, aseptic dressing of the ear brought about the disappearance of the discharge on this side. On the day of the operation the ear had ceased to run, and there was no pus to be found in the mastoid process. It was, therefore, considered sufficient to open the fistula from the process to the nape of the neck, to curette the suppurating pouch, and to drain after sewing up the wound, which was more than 10 cm. in length. Complete recovery took place in twelve days. At the time of the operation, on seeing the meatus dry and absence of pus in the mastoid, it was supposed that the central and otitic lesions had undergone cure, and the nature of the operation was entirely modified, in so far as the abscess of the nape was treated as if it had not arisen from the ear. The result was satisfactory, and the after-treatment very short.

(5) A case of severe otitic pyæmia without there having been any visible signs in the mastoid region. The antrum was opened, however, and the patient got well.

M. GEORGES LAURENS recalled certain cases of pseudo-Bezold mastoiditis, in particular a recent one in which he had to interfere several times. These were sub-cranial phlegmons without any fistulous connection with the process, and in which the pus spread out over the deeper surface of the muscles of the nape of the neck, reaching the transverse vertebræ and pointing on the under sur-

face of the petrous bone and middle ear. In the case to which M. Laurens referred the recovery of the patient was due entirely to dissection of the deep surface of the muscles of the neck.

M. CAUZARD had had the opportunity in the previous June of operating on a deep phlegmon of the neck of mastoid origin, extending from the border of the trapezius to the hyoid bone under the sterno-mastoid. The ear had run for a short time, but had got well, and the tympanum had closed. The mastoid, which was to all appearance normal, was scarcely sensitive. M. Cauzard had to make an almost complete resection of the mastoid, then two incisions for the purpose of drainage, the first behind the root of the neck, between the trapezius and the sterno-mastoid, and the second in the sub-hyoid region. Recovery took place in two and a half months.

G. VEILLARD (D. G., transl.).

Abstracts.

PHARYNX.

Williams, P. Watson.—*Note on a Case of Fenestration of the Anterior Pillars of the Fauces.* "Lancet," January 25, 1908.

The writer considers the condition congenital on account of: (1) The absence of any cicatrices or unevenness in the margins of the fenestræ; (2) the bilateral symmetry of the malformation; (3) the arrangement of the strands of mucous membrane and the muscle-fibres, and that they obviously correspond to the anterior pillars of the fauces; and (4) the fact that although the posterior faucial pillars do not show fenestration, yet the palato-pharyngeus muscles are collected into a separate bundle of fibres on each side, with only a thin layer of mucous membrane in continuity with the lateral walls of the pharynx. Thus, in front the palato-glossus muscle forms a separate bundle, passing down to the tongue, and forms the inner boundary of a fenestra on each side, while the palato-pharyngeus forms the inner boundary of a thin web of mucous membrane.

A possible explanation of these fenestrations is that the condition of the anterior faucial pillar was similar to that shown in the posterior pillar until scarlatinal angina caused the thin web of mucous membrane to ulcerate, leaving the strands of palato-glossus muscle seen in later life.

StClair Thomson.

Gleason, E. B. (Philadelphia).—*Treatment of Hypertrophy of the Faucial and Pharyngeal Tonsils.* "Med. Bull.," December, 1907.

Gleason deprecates removal of adenoids when there is good nasal respiration after the nose and naso-pharynx have been cleansed of mucus, or when there is only occasional obstruction to nasal respiration from swelling of the third tonsil as the result of a coryza. In such cases he

advises breathing exercises. When the growths are not large they should be painted with iodine by the surgeon two or three times a week, and the parents should cleanse the nose night and morning with an atomiser containing an alkaline wash, and then place in the nostrils a piece of gallic acid ointment (1 or 2 per cent.) while the child lies on its back. When the hypertrophy is great he operates but avoids chloroform.

Dundas Grant.

Howell, C. M. H.—*Case of Paralysis of Palate and Vocal Cords in Tabes Dorsalis.* "Neurol. Sect., Roy. Soc. of Med.," March 12, 1908.

The patient, a labourer, aged twenty-six, married, had two children, his wife had no miscarriages. He admitted syphilis seven years ago, and was treated for two years with pills and gargle. Otherwise healthy. For the last year had noticed his speech had changed, *i.e.* become more nasal. For some time the left eyelid had "drooped" more than usual, though it had always had a tendency to do so. Occasional regurgitation of fluid through nose. For the last nine months had had occasional attacks of dyspnoea; woke at night sometimes and had difficulty in getting his breath. Occasional diplopia for last two years. Legs easily tired. The patient was a thin man with bilateral ptosis, most marked on left side. The pupils were equal, and they reacted briskly on accommodation, but not to light. No defect in visual acuity and fields normal. Ocular movements good. Ninth, tenth, eleventh cranial nerves: double palate paralysis, double abductor paralysis of vocal cords. Sterno-mastoids and trapezii were unaffected. Upper and lower extremities possessed fair power, no incoordination or ataxy; gait natural. Reflexes: knee-jerk could be obtained on right side with reinforcement; easily on left; ankle-jerks not obtained; sphincters natural. No pains beyond some aching in the back of his neck; analgesia of legs; no tactile anaesthesia.

Dundas Grant.

NOSE AND ACCESSORY SINUSES.

Wingrave, Wyatt.—*Spirographs of Nasal "Breath Pictures."* "Lancet," January 26, 1907.

The practice of testing nasal patency by breathing upon a prepared surface is by no means new, but its usefulness has been somewhat restricted by the want of a satisfactory material. Slate, glass, and polished metals all have their shortcomings, but I have now found that vulcanite, with a medium polish, gives a very reliable and faithful image. By placing the plate horizontally on the upper lip half an inch from the nostrils, and giving one short and steady expiration, a well-defined steam impression results, and evaporating affords reliable and striking evidence of the actual and relative patency of the nostrils. The image may be temporarily fixed or rendered more conspicuous for demonstration purposes by lightly powdering it with calcined magnesia or fine starch. Small sheets of vulcanite, with a suitable surface, and of a convenient size, are supplied by the Medical Supply Association, 228, Gray's Inn Road, London, W.C.

StClair Thomson.

Rivers, W. C.—*Non-Tuberculous Intra-Nasal and Post-Nasal Abnormalities; their regarded Association with Tuberculosis.* "Lancet," December 28, 1907.

This is a plea for a more complete investigation of nasal obstruction and catarrh as a predisposing factor to pulmonary tuberculosis.

StClair Thomson.

Mancioli (Florence).—*Tuberculosis of the Nasal Mucous Membrane.* "Policlin," 1907.

The author describes several cases and illustrates them with microscopical preparations in order to show that nasal tuberculosis has been neglected up to the present, and that it is by no means a rare manifestation of this terrible disease. It shows itself in the nasal mucous membrane under the form of ulceration or of vegetations; of all the cases described up to the present, one third belong to the first group and the rest to the second. This work gives clearly the nosology and differential diagnosis as well as the treatment.

V. Grazi.

Jackson, Chevalier (Pittsburg, Pa.).—*Septal Perforations; their Closure by Plastic Operation.* "Medical Record."

The enlarging of a septal perforation to stop the "whistling" of a small perforation is, in the writer's opinion, an obsolete and unjustifiable procedure. Small perforations are very easily closed by a simple operation, and great relief will be afforded from the manifold annoyances which accompany such perforations. The operation is, briefly, as follows: The inferior turbinal of one side and the septum are anesthetised with cocaine and adrenalin in the usual way. Then a long tongue-shaped flap is made in the inferior turbinal by two parallel incisions, using Kyle's right-angled tonsil knife, or Ballenger's, or Freer's, or Watson's septal knives. This flap is made of the entire thickness of the mucosa with some of the submucosal tissues. It is free posteriorly and attached anteriorly. It must be at least 6 mm. larger vertically than the perforation, and must be of very ample length, usually almost as long as the turbinal itself. After the flap is raised the edges of the perforation are freshened with a cataract knife and the flap is brought forward and is stitched in place with silk sutures, using Killian's or Yankauer's suturing instruments.

In case of a very small perforation the operation is now completed. In case of a larger perforation it is better to duplicate the operation on the other side. Usually no packing is required, but if it is deemed necessary it must be placed behind the flap before the flap is sutured. Then the packing may be completed after the flap is sutured. The result of the operation, when the flap unites with the septum, is to create a synechia. But this is very simply removed by clipping out a section of the bridge formed by the flap and inserting a strip of bismuth lint, which is left for five days. It is absolutely essential that all excess of the inferior turbinal be removed, as, if the turbinal is hypertrophic, a troublesome synechia will result.

Lanzun-Brown.

Seifert, O. (Wurzburg).—*On Paraffin Prothesis in Rhinology.* "Münch. med. Woch.," No. 4, 1908.

Professor Seifert expresses satisfaction with the results he has obtained in cases of sunken nose. He uses Stein's instrument and paraffin with a melting-point of 45° C. (113° F.). He thinks that such complications as

embolism of the arteria centralis retinae are probably attributable to faulty technique.

Dundas Grant.

Krebs, J.—*Foreign Bodies in the Nose giving rise to Empyema of the Maxillary Antrum.* "Zeitsch. für Ohrenheilk.," vol. liv, Part II.

The writer states that the fact that foreign bodies in the nose may give rise to accessory sinus disease is not generally recognised.

He gives an account of the two following cases which have occurred in his own practice :

(1) A girl, aged eleven, was brought to the author on account of nasal obstruction. On examination the right nasal fossa was found filled with viscid, foul-smelling pus, which surrounded an encrusted foreign body of stony hardness. This was easily removed with Hartmann's nasal forceps, and proved to be an india-rubber baby's teat. Neither the mother nor the child had any knowledge of its presence in the nose, but it was thought that it must have been there for at least seven years. Fourteen days later the child was seen again. The right nasal fossa was patent, but a thin streak of pus was found coming down from the middle meatal region, and on transillumination the right maxillary antrum was opaque. The next day probe-puncture of the right antrum was performed and a quantity of pus cleared out. The parents refused to allow any operation for the condition.

The author saw the patient again six years later, and found her still suffering from maxillary antrum empyema.

(2) A farmer, aged thirty-six, who had had a nasal polyp removed by the writer three years previously, when the accessory sinuses were found to be quite healthy, came with the following history : Two months ago, while engaged in threshing, a grain of wheat had been driven into his left nasal cavity, which he was unable to dislodge : in the course of a week this side of his nose became more and more blocked, and a copious discharge of matter set in. The writer, on examination, found the skin at the entrance to the left nasal fossa excoriated and eczematous ; the fossa was filled with pus, which, owing to the nasal obstruction, could not be removed so as to permit an accurate examination. On the floor of the nose was seen a large discoloured tumour reaching to the choanae posteriorly and extending into the middle meatus.

The mass was easily removed without hæmorrhage by forceps, and found to be torpedo-like in shape, 5 cm. long by 2 cm. thick, and showing a wheat-grain springing from it. On microscopical examination the mass was found to consist of organised granulation tissue.

No seat of origin of the tumour could be made out in the nose, but pus was seen in the middle meatus. To transillumination the left maxillary region was quite opaque. A quantity of pus was washed out of the antrum through the natural opening, and the syringing was repeated daily for fourteen days, at the end of which the suppuration had entirely ceased. In these two cases the writer is of opinion that the purulent discharge occasioned by the foreign body in the nasal cavity infected the antrum.

The advisability of carefully examining the nose at an interval of time after removing a foreign body is pointed out, since the patient is relieved to such an extent that he is not likely to be troubled by the much smaller discharge from an accessory sinus. It is probable, therefore, that such cases are commonly overlooked.

Lindley Sewell.

LARYNX, &c.

Bisson, A. O. *Tracheotomy in Slight Respiratory Obstruction Associated with Febrile Toxicemia.* "Lancet," January 26, 1907.

In fever practice there is a type of case occasionally encountered in which toxæmia is accompanied by very slight, apparently inconsiderable obstruction of respiration. Such cases are commonest in septic scarlatina, and now and then are seen in smallpox. There is also a septic type of diphtheria, defined by Monti, in which the larynx is but little affected; there is slight obstruction, but is not progressive, and the patient apparently dies as a result of the toxæmia.

The indications for tracheotomy in this type of case are:

(1) *Difficult breathing.*—In addition to the usual cause of obstruction, there is not uncommonly marked lymphadenitis on both sides of the neck. This is often accompanied by edema, and even in some cases by an acute inflammation of the subcutaneous tissue of the neck, possibly causing pressure on the trachea. Stress is laid on the fact that the obstruction is usually extremely light. It is its duration which tells on the general condition, and especially on the strain of the heart.

(2) *Restlessness.*—With this there may be return of fluid through the nose, cyanosis, and extreme exhaustion.

(3) *Recession* is usually very slight or even absent; it is only extreme in cases of laryngeal diphtheria.

(4) *Condition of the heart.*

(5) *Condition of the pulse.*—There may be a typical *pulsus paradoxus*, a sign of extreme gravity.

(6) *Colour of the face.*—Slight lividity about the mouth and nose.

(7) *Septic laryngitis.*

Tracheotomy has been done during the last one or two years for hæmorrhage from the naso-pharynx, in which the plugging of the posterior nares did not arrest the flow.

After tracheotomy the improvement within a few hours is remarkable. It is better to operate under a local anæsthesia. A high and rapid tracheotomy with a small incision is recommended.

In children under three the prognosis is not so favourable.

StClair Thomson.

Wylie, A. (London).—*Treatment of Innocent Laryngeal Growths by the Galvano-cautery.* "Lancet," November 23, 1907.

The advantages of the galvano-cautery are: (1) That very minute growths can be obliterated, and that, as far as experience shows, they do not return; (2) that small vascular growths can be removed without the risk of hæmorrhage; (3) that it is far superior to chemical caustics; the dangers of local reaction arising from chromic and lactic acid are always considerable; (4) that the technique is more reliable, more precise, and involves less risk of damage to adjacent structures; (5) that the whole operation is in view of the surgeon, which is not the case with forceps; (6) that by it small sessile growths on the mesial surface of the vocal cords are more thoroughly treated than by the forceps; (7) that the stumps of growths already removed by other instruments can be obliterated by the cautery; (8) the galvano-cautery cuts off the blood supply and thus kills the growth, while the forceps often only removes the superficial parts; and (9) that it diminishes the liability of local infectivity of papillomata.

StClair Thomson.

Biaggi and Gavello.—*On Cancer of the Larynx.* "Proceedings of the Eleventh Congress of the Italian Society of Laryngology, etc."

Although this question has been treated frequently at various general and special congresses, the two authors have given to their work a most interesting form. In regard to cancer of the larynx, Biaggi states that we ought to consider in it one efficient cause and several occasional ones. In regard to the former, excluding the parasitic theory on account of insufficient proof, and also the theory of Beard for the same reason, the latest studies in refined cellular histology and in the nature of cancer lead us to admit the existence of an epithelial cell formed beforehand with special congenital conditions, which cell, under the action of accidental agents, assumes specific characters and action. The frequency of cancer of the larynx in the male as compared with the female is due to the exceptional causes which render the organ of speech more vulnerable in regard to the preformed cell. Gavello collates and criticises the various opinions and the results obtained by different methods for the treatment of cancer of the larynx, and arrives mainly at the following conclusions: Palliative treatment ought only to be carried out in cases in which the patient refuses more energetic treatment, or in which the extension of the disease justifies simple palliative methods. The different palliative methods are more or less of equal value, the only surgical one being tracheotomy, which, under favourable circumstances, can be of considerable value on account of its moral and general effect on the patient. The true and only treatment is surgical operation, which will be all the more simple and efficacious the earlier the diagnosis is made, it being confirmed by the clinical examination and the histological report of a fragment removed by the natural passages. The author considers that exploratory laryngotomy is only necessary in very exceptional cases. The nature of the operation ought to vary according to the special case. In early and limited lesions it should be partial, and for more diffuse lesions it should be extensive, under the guidance of general surgical principles. Endo-laryngeal intervention is indicated when the tumour is initial, pedunculated, and clearly limited to the free margin of one vocal cord, in order that it may be possible to remove along with the entire growth a part of the healthy active tissue on which it is planted. An essential condition is that the patient should be kept under the observation of the operator, so that he may be able to detect the least indication of recurrence and carry out further and more active intervention. The two extra-laryngeal methods of operation, laryngotomy and laryngectomy, ought not to be considered as antagonistic to each other, but as being subsidiary; when the limitation and extent of the tumour give reasonable hope that it may be removed *in toto* without great danger to the patient, one ought by preference to perform thyrotomy as being less dangerous and giving good results. On the other hand we should resort to partial or total laryngotomy, preferring the former on account of the lesser danger, and for the better functional results which it affords. Thyrotomy can also be made as the first stage in a radical intervention on the larynx. Thyrotomy is indicated in cases in which the neoplasm is not extensive either in width or in depth, and where the cartilages have not been attacked and there is no glandular infiltration. It is necessary that prolonged observation after the operation should be continued with a view to any eventual indication for more extensive interference. Recurrence is not more likely to take place in this than in laryngectomy, while the dangers attending operation on post-operative complications are less.

Laryngectomy ought not to be confined alone to very grave and desperate cases, or to be looked upon as the *ultima ratio*; if it is carried out in cases which are already grave, but in which the general conditions are good, there is every reason for carrying it out in a hopeful spirit.

V. Grazzi.

Bruce, H. W.—*A Case of Vincent's Angina in which the Larynx and Trachea were Involved.* "Lancet," October 12, 1907.

The author describes a case in a man, aged forty-seven, in which Vincent's angina not only involved the fauces, but attacked the mucous membrane of the larynx and trachea. The characteristic bacilli were present in large numbers in smears taken from the slough, but no spirilla were discovered. Laryngeal obstruction necessitated laryngotomy. At the end of five days, although respiration was relieved, the tissues of the neck around the wound were attacked by a sloughing process. The skin and subcutaneous tissues were converted into a grey fetid material; the gangrenous process spread outwards and downwards as far as the clavicle, the lungs became involved, and the patient died eleven days after admission. *Post-mortem* examination showed sloughing of the uvula, and a thin green slough covered the ary-epiglottic folds, the mucous membrane below the false cords and the trachea almost down to the bifurcation. The author remarks on the unusual features of the case, and compares it with the mild form of phagedena or hospital gangrene.

StClair Thomson.

Bazett, Henry.—*A Fatal Case of Angio-neurotic Œdema.* "Lancet," October 12, 1907.

The author was called to see a man, aged twenty-three, seized with choking, but found on arrival he was dead. The eyelids of both sides were so swollen that it was difficult to get any view of the pupils; the cheeks and lips were swollen, and the neck appeared to be nearly twice its natural size. The remainder of the body was unaltered and ill-nourished.

Post-mortem examination revealed marked œdema of the ary-epiglottic folds. The urine was normal.

Previous history of the case showed that, since the age of six, the patient had been subject to attacks of abdominal colic, with sudden swellings of various parts of the body, usually in the hands, thighs, or scrotum, and subsiding in twenty-four hours.

StClair Thomson.

Nowoiny, F. (Crakow).—*Bronchoscopy and Bronchoscopic Treatment in Bronchial Asthma.* "Monats. für Ohrenheilk.," December, 1907.

The author finds reason to support the view held by Pienazek that the dyspnoea is due to a swelling of the mucous membrane of the smaller bronchial tubes analogous to "angio-neurotic œdema." He treats obstinate cases by the application of cocaine and adrenalin through the bronchoscope.

Dundas Grant.

EAR.

Krotoschiner (Breslau).—*The Demonstration of Disturbances of Equilibrium in One-sided Disease of the Labyrinth.* "Arch. of Otol.," August, 1907.

In the absence of unmistakable typical "labyrinth" symptoms, the labyrinth may be sufficiently involved to be a route for infection of the

meningitis. Such changes may be detected by von Stein's methods of investigation, including the examination of the hearing, static examination on horizontal and oblique planes (goniometer), active and passive centrifuging, dynamic tests (walking and jumping). Many of these are too trying for use in some cases; the hearing and the static tests are, however, unobjectionable. If the patient can jump backwards with the eyes closed, extensive disease of the labyrinth is improbable. [This is the test recommended by Koerner.—D. G.] *Dundas Grant.*

Knapp, A. (New York).—*Otitic Meningitis.* "Arch. of Otol.," August, 1907.

Knapp found in 52 cases extension to the dura in 29. This took place 11 times by erosion through the tegmen and in 16 through the posterior surface, upper border, or apex of the petrous bone. In 22 cases the extension to the meninges was through the labyrinth and internal meatus. In nearly three fourths of the cases it was the posterior fossa, and in a little over one fourth the middle one in which the infection occurred. Meningitis may be serous or purulent, and may be encapsulated, acute, progressive, or general. Kernig's sign is very reliable as also lumbar puncture, although Brieger found pus in the lumbar fluid from a leakage of pus into the ventricles without general purulent meningitis, and Voss a similar state of the spinal fluid in a case of sinus thrombosis. Operative treatment is more hopeful than formerly held, especially when the infection is through the middle fossa. Ballance is quoted as laying down the principles of treatment as suppressing the source of infection, giving free exit to the suppurative exudation and administering appropriate antitoxin. Friedrich counsels incision of the dura at the site of infection and drainage by a counter opening in the spine (laminectomy). The exposure of the middle fossa is easy, that of the posterior by removing the posterior part of the petrous bone as far as the internal meatus so that the dura can be incised and the subarachnoid "cisterna" drained. Kuemmel, a general surgeon in Hamburg, effected a cure in an apparently hopeless case of traumatic meningitis by making an opening of the size of a silver "thaler" on each side of the middle line in the occipital bone, excising the dura, and draining by means of gauze tampons. The author dwells on the necessity of early and thorough elimination of the primary focus, and early recognition of labyrinthine suppuration with adoption of the appropriate surgical measures. *Dundas Grant.*

Richards, J. D. (New York).—*Report of Three Cases of Infective Sinus Thrombosis.* "Arch. of Otol.," August, 1907.

In the first, a case of acute otitis, chills, and oscillations of temperature, as also extreme depression indicated sepsis. The tympanum had not been incised. On operation the sinus appeared normal, but no blood came from below. The jugular was then excised. On returning to the upper wound the operator removed the tampon, and then a clot was expelled from below by the force of the circulation diverted by the ligation of the jugular. Recovery followed.

The second was also an acute case with labyrinthine symptoms. Operation revealed pus coming from the fenestra ovalis, and apparent recovery took place, except that the pulse remained rapid. However, a chill and rise of temperature occurred. The sinus was found occupied by a disintegrating clot (contrary to expectation), the jugular was thrombosed and thickening down to the subclavian. The patient succumbed

to general sepsis. The rapidity of the pulse was the only sign of the impending danger.

The third was that of a child with long-standing chronic suppuration. Severe pain and signs of mastoid suppuration occurred, there was drowsiness and horizontal nystagmus on looking towards the diseased side (in labyrinthitis the nystagmus is generally most marked on looking towards the sound side). There was a perisinuous abscess and a clot in the sinus. The jugular was poorly filled and was collapsed as far down as the facial. Nothing was found in the tympanum to account for the nystagmus. Recovery took place.

Dundas Grant.

Blau, A. (Goerlitz).—*A Case of Serous Meningo-encephalitis, with Autopsy Report.* "Arch. of Otol.," August, 1907.

Three weeks after an attack of measles a child, two and three quarter years old, had pain in the right ear followed by discharge, gradual loss of sight and hearing, pallor of the optic disc with thinness of the retinal arteries, ptosis of the left (opposite) eyelid, and occasional convulsions in the left arm and leg. The child became somnolent, and the reflexes lost. No lumbar puncture was performed. The radical mastoid operation was performed, and bone-caries was found—probably chronic. Both fossæ were opened, puncture of the brain gave vent to a large quantity of serous fluid, but no pus. The ptosis diminished, but death took place, and the ventricles were found enormously distended, an acute internal serous meningitis. Mydriasis of the left pupil had been noticed forty-two hours before death. There was a clot in the longitudinal sinus. No communication with the ear being found the writer considers the case as confirming Merken's suggested explanation of serous meningitis as being caused by toxic agents.

Dundas Grant.

Schroeder, H. (Erlangen).—*Another Case of Otitic Purulent Sinus Thrombosis without Fever.* "Arch. of Otol.," August, 1907.

Six months after acute suppuration the pain returned with tinnitus, deafness, occasional vertigo, and vomiting. The pus contained staphylococci. Radical mastoid operation revealed pus, and exposure of the sinus which was covered with granulations. There was a large opening through which pus escaped, but above and below there was solid clot which was left *in situ*. Recovery took place. The protective power of the patient probably prevented the infection from becoming general.

Dundas Grant.

Kerrison, P. D. (New York).—*Report of a Case of Diphtheria, complicated by Acute Purulent Otitis Media, Mastoiditis, and Infective Sinus Thrombosis.* "Arch. of Otol.," August, 1907.

The drum was incised, the mastoid cells were opened later, and contained pus with staphylococci. The temperature curve suggested sinus phlebitis, but on exploration the sinus appeared normal. Later it was opened, and blood came from above, not from below, but when a clot was everted from the lower part a very moderate flow took place. Two days later the jugular was removed. Gradual recovery took place. The author considers that there is no safe and practical means of detecting a parietal, non-occluding clot in the bulb or inner end of the horizontal limb of the sinus. If the symptoms indicate no urgent need of intervention he suggests that we may delay operation for the purpose of allowing the clot to develop to a demonstrable size. Also that when septic

absorption is in progress it may be wise, even when no clot is revealed by exploration, to resect the jugular vein to eliminate this avenue of infection.

Dundas Grant.

Siebenmann, Professor.—*On Deafness Arising in the Course of Acute Osteomyelitis and Septic Processes in General.*

The writer gives an account of three cases occurring in his own practice, and has collected reports of four others in the literature. The cases are reviewed and an attempt made to depict the disease as a clinical entity, although, as the author states, the material is as yet rather small on which to frame any very definite conclusions.

The deafness, which is of sudden onset, occurs in cases of acute osteomyelitis of the long bones, of a severe type with high fever. The onset of the ear trouble may take place at the time of the high fever, but is usually much later, thus, in one case, even as long as five years afterwards. The patients, with one exception, were all under twenty years of age. Severe tinnitus and giddiness, with, in some cases, vomiting, accompanied the deafness at its commencement.

The loss of hearing, usually bilateral, was rapid, and was complete in some cases in a few hours; in others the marked deafness resulting from the acute attack gradually progressed for two years before complete loss of function was reached. In only one case was there any improvement in the hearing power, and that on one side only. Two of the patients, both seven years of age, became deaf-mutes; it is possible, therefore, that in this disease we have a factor in the production of deaf-mutism which is at present overlooked.

The middle ear was not involved, the history and the results of functional tests pointing definitely to a lesion of the internal ear.

In all the cases the cochlear and vestibular nerves were the only ones apparently affected, but this, the author points out, would not in itself be sufficient ground for denying a polynuritic infective process, since certain poisons, such as quinine and salicin, also show a special tendency to attack the acoustic nerve.

In Steinbrügge's cases such changes were found in the labyrinth and meninges as to lead this writer to regard the disease as an extension from a meningitis, but except in this case no evidence of meningitis was present in the series.

Against the theory of septic metastasis into the labyrinth is the fact that no other organs in the body are involved, and that such a process is very rare in staphylococcal infections.

It is possible that fine changes may have been produced in the acoustic nerve, for it has been shown that the injections of living staphylococci into rabbits have brought about acute and marked changes in the nerve-cells. The endotoxines are not known to produce any change. But it is found that osteomyelitis has never been known to give rise to optic neuritis, in fact ophthalmologists regard septic processes in general as an extremely rare cause of this lesion. On the other hand, retinal hæmorrhages, septic retinitis, and panophthalmia are common results of general septic infection, usually due to streptococci.

Having regard to this analogy the writer thinks that osteomyelitic deafness must be put down to some change, not in the nerve, but in the labyrinth itself. The whole matter needs further investigation, especially complete examination of the auditory apparatus in patients dying from osteomyelitis.

Lindley Sewell.

Putelli, F.—*On the Examination of the Hearing of Railway Employees.*
"Arch. Ital. d'Otolog.," vol. xviii, No. 6, 1907.

Dr. Putelli gives a *resumé* of the recent publications with regard to this point, and has come to the opinion that at present, of those tests which do not require mathematical exactness, the whispering voice produced by the residual air gives us the most universally convenient method of acoumetry.
W. Grazzi.

NECK, THYROID, ŒSOPHAGUS.

Melandri, F. G., and Legg, T. P.—*Case of Acute Suppuration in a Thyroid Adenoma due to the Bacillus Typhosus.* "Lancet," January 25, 1908.

The case is described by the title. Acute abscess of the thyroid is not a very common occurrence, and when it does occur, apart from traumatism, such as puncturing a cyst, it is more often observed in connection with an acute febrile tissue and generally at a late stage of the illness.

StClair Thomson.

Manson, J. S.—*Open Safety-pin in the Œsophagus of a Child aged five months.* "Lancet," January 4, 1908.

A male child, aged five months, was admitted to the Oldham Infirmary on October 26, 1907, with a history of having swallowed a safety-pin one hour previous to admission. A skiagram was taken and the pin was seen to lie about the middle of the Œsophagus, open with the point upwards. It seemed a hopeless task to try to get the pin up by means of a probang, so it was resolved to push the pin down into the stomach and hope for the best. An ordinary stomach-tube of small-size was pushed down the Œsophagus, and after withdrawing another skiagram was taken showing the pin lying in the stomach. The child was kept in bed and watched carefully. Milk diet was given, and four days after admission a dose of castor-oil. On the afternoon of November 2 the pin was found sticking halfway out at the anus. The pin took six and a quarter days to accomplish the journey from the mouth to the anus, and only once or twice did the child seem at all fretful. The case seems worthy of note in showing the power of the alimentary canal in dealing with a foreign body of a somewhat formidable nature.

StClair Thomson.

Paterson, D. R. (Cardiff).—*Note on the Removal of an Open Safety-pin in the Œsophagus of a Child aged Five Months.* "Lancet," February 1, 1908.

Criticising the above communication Dr. Paterson points out the great dangers of the method employed, although it ended fortunately. He pleads for the adoption of Killian's Œsophagoscopic tube in any similar cases.

StClair Thomson.

MISCELLANEOUS.

Slater, A. B.—*A Case of Diphtheria of the Skin, of Three Years' Duration, treated by Antidorine.* "Lancet," January 4, 1908.

There seems to be no doubt that the most important factor in this case was the Klebs-Loeffler bacillus. The disease apparently commenced

as an acute attack of diphtheria, the primary seat of infection being the eyes. From this focus the vulva became infected, and then the bacteria in some way found their way into the superficial lymphatic circulation, producing a condition resembling herpes, probably as the result of peripheral neuritis set up by the bacilli themselves. This theory is based on the fact that during the whole of the duration of the disease, since the primary acute symptoms, the lesions have been confined to the superficial layers of the skin (proved by the fact that no scarring was left). Whether the staphylococci played any important part is difficult to say, but they probably had only a mild influence, if any at all, as the use of various lotions, such as 1 in 40 carbolic lotion, and perchloride of mercury 1 in 1500 had no effect on the lesions, whereas the effect of the antitoxine was remarkable.

StClair Thomson.

Schonemann A. (Berne).—*Reports from his Private Clinic with Clinical Cases.* "Monats. für Ohrenheilk.," Year XLI, No. 7.

Among other cases is one of purulent cerebro-spinal meningitis following removal of adenoids. It was probably epidemic, though, in the unfortunate absence of an autopsy, there is some question as to there having occurred a violent waking-up of a chronic frontal sinusitis leading to cerebral abscess. Another is one of labyrinthine suppuration following chronic purulent otitis, cured by operative opening of the labyrinth. Another case is one showing the beneficial action of iodoform in tuberculosis of the middle ear.

Dundas Grant.

Frigyasi, J.—*Question of Artificial Interruption of Pregnancy in Tuberculosis.* ("Orvosi Hetilap," April, 1907.) "Aerzt. Rundschau," No. 52, 1907.

An interruption often takes place spontaneously as the result of the bodily depression, insufficiency of heart action, pyrexia, or the saturation of the blood with carbonic acid. Under the action of pregnancy old tuberculous processes become acute, and those that are present more severe. In the last stages of pulmonary tuberculosis, which are quite hopeless, the interruption of pregnancy cannot bring the process to a standstill. In cases in which there is a possibility of recovery or of lasting improvement, the question of interruption only comes under consideration when signs of advanced disease in the lung and of diminution of the bodily strength are observed, and when the therapeutic and hygienic measures are without result. The danger attending artificial interruption is less in the first six or eight weeks; in the later months (three to five) it is not without danger, but the organism is in a better condition than it would be towards the end of pregnancy, and the puerperal stage is also milder than with normal labour.

Dundas Grant.

Grasmann (Munich).—*Experiments on Disinfection of the Hands, with a Special Reference to the Iodine-benzine Method recommended by Hensner.* "Aerzt. Rundschau," December 14, 1907; "Münch. Med. Woch.," No. 43, 1907.

This method is stated to cause no irritation of the skin and is quickly carried out, but on account of the inflammability of the iodine-benzine, the author recommends the substitution of benzinoform (CCl_4), which is neither inflammable nor explosive. The hands are washed for five minutes in a quarter of a litre of a 0.1 per cent. solution of iodine-benzinoform.

Dundas Grant.

REVIEWS.

Geschichte der Laryngologie in Würzburg (History of Laryngology in Würzburg). By Prof. Dr. OTTO SEIFERT (Würzburg). Würzburg: Curt Kaptitzsch, 1908.

We have been favoured with a copy of an interesting work dedicated by Professor Seifert, of Würzburg, to Professor B. Fränkel, of Berlin, on the occasion of his seventieth birthday. Professor Seifert's many original contributions to the literature of laryngology and rhinology are well known to all specialists both here and abroad, and all will be gratified to learn of the facilities that have been placed at his disposal for the study and teaching of laryngology and rhinology in the University of Würzburg. As early as 1859 lectures upon the laryngoscope were given in this university, the first to teach this subject being the then Dr. Gerhardt, whose name has attained a universal celebrity. For many years the teaching of laryngoscopy was combined with that of percussion and auscultation, and Drs. Rossbach and Riegel taught it in this connection. The establishment of the special courses apparently dated from 1871, and among those who conducted them, we observe, along with Dr. Seifert's name, those of Drs. Matterstock, Geigel, Anton, Hammer (now practising in Würzburg) and others. Professor Seifert has himself carried on courses since the summer of 1883 without interruption, dividing them into sections for beginners and more experienced students respectively. In 1905 the University polyclinic for diseases of the nose and throat was established, with subvention from the State, of which all particulars are given in this paper. The plan of the structure of the building and the details of the course for beginners will be found of interest to any to whom may be entrusted the installation of a special department and the methodisation of the teaching. A full list is given of the many valuable monographs which have issued from the Würzburg School, including, among others, von Bergmann's "Case of Extirpation of the Larynx" (1882), Gerhardt's paper on "Posticus Paralysis, or Adductor Contracture" (1885), Aschenbrandt's on "The Importance of the Nose in Respiration" (1886), besides eighty-seven works by Professor Seifert himself, which give evidence of a happy combination of the original scientific spirit along with a keen appreciation of the requirements of practical medicine. His atlas of the histo-pathology of the nose, pharynx and larynx is one of the most valuable additions to our libraries. Among the pupils of the Würzburg school who have devoted themselves to rhino-laryngology and have acted as assistants to Professor Seifert, we find the names of Herzog (Cincinnati), Kahn (Würzburg), Peterson (Berlin), Lieven (Aix-la-Chapelle), Kanasugi (Tokio), Boeninghaus (Breslau), Hasslauer and others. Among the famous names with which the University of Würzburg is associated may be mentioned Virchow, von Bergmann, Leube, Kölliker, Scanzoni, Sachs, Gerhardt and Troeltsch. We are quite sure that in future history the name of Seifert will occupy a highly honoured place, though we venture to expect that when a chair is vacant in one of the greater universities he will be invited to move from this charming Bavarian town to some field of greater activity.

Guide to Diagnosis in Diseases of the Throat, Nose and Ear. By DAN MCKENZIE, M.D. London: Rebman, Ltd., 1908.

In this handy volume of 283 pages the author places before the reader a simple and trustworthy guide to diseases of the upper air-passages and ear. The more ordinary methods of examination and of diagnosis are accurately, although very briefly, described, and various illustrations, which will be of service to beginners, are interpolated in the text. A form of ideograph, in use at the Central London Throat and Ear Hospital for recording the results of transillumination of the maxillary antra and frontal sinuses, is depicted, which we think will prove of service for the purposes of note-taking.

In testing a patient's hearing power the author advocates placing the watch in contact with the affected ear and then withdrawing it inch by inch until the patient fails to hear it—a method just the reverse of what we think is in ordinary use, and one open to considerable source of error. Attention is drawn to the advisability of examining for the presence of adenoid vegetations in every case of suppurative middle-ear disease. The author discusses the diagnosis of mastoid and labyrinthine suppuration with their intra-cranial complications immediately after suppuration of the middle ear—an arrangement which we consider fully justified and convenient.

A most useful chapter (Chapter XIV) upon the microscopical examination of aural, nasal and throat discharges and tissues, by Wyatt Wingrave, is appended. A description of the methods of collecting, preparing and staining tissues or discharges for examination is fully set forth and will be found of great service, as the reviewer can testify from personal experience.

A carefully-prepared index completes what will be found to be a useful introduction to the study of diseases of the nose, throat and ear.

THE *French Society of Oto-Rhino-Laryngology* will hold its next annual session under the new title of *Congrès Français d'Oto-Rhino-Laryngologie*, commencing on Monday, May 11, 1908, at 9 a.m., in the *Hôtel des Sociétés Savantes*, No. 8, Rue Danton, Paris. There will be two set subjects for discussion as follows: "The Clinical Forms of Ménière's Disease," opened by Drs. Lannois and Chavannes; "Pharyngeal Paræsthesia," opened by Drs. Boulay and Le Marc'hadour. Members intending to take part in the Congress are requested to forward the *title* of any communication they may wish to make before April 1. The manuscripts must be addressed to the Secretary-General, and handed in, at the very latest, at the sitting at which the communication is read.

N.B.—The French railway companies allow a reduction of 50 per cent. on the fares of those attending the Congress, but in order to obtain this reduction members must fill up a voucher (sent by the Secretary) before April 1.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

UNDER the most distinguished medical and lay patronage an International Congress on Tuberculosis is to be held at Washington, beginning on September 21 and ending on October 12.

We have been requested to bring before our readers an interesting announcement as to certain prizes offered by the Central Committee.

All information may be obtained from Dr. John L. Fulton, Washington, the secretary-general, or his editorial assistant, Gertrude B. Knipp, Colorado Building, Washington.

The following are the prizes offered :

(1) A prize of \$1000 is offered for the best evidence of effective work in the prevention or relief of tuberculosis by any voluntary Association since the last International Congress in 1905. In addition to the prize of \$1000, two gold medals and three silver medals will be awarded. The prizes and medals will be accompanied by diplomas or certificates of award.

Evidence is to include all forms of printed matter, educational leaflets, etc.; report showing increase of membership, organisation, classes reached—such as labour unions, schools, churches, etc.; lectures given; influence in stimulating local Boards of Health, schools, dispensaries, hospitals for the care of tuberculosis; newspaper clippings of meetings held; methods of raising money; methods of keeping accounts.

Each competitor must present a brief or report in printed form. No formal announcement of intention to compete is required.

(2) A prize of \$1000 is offered for the best exhibit of an existing sanatorium for the treatment of curable cases of tuberculosis among the working classes. In addition to the prize of \$1000, two gold medals and three silver medals will be awarded. The prize and medals will be accompanied by diplomas or certificates of award.

The exhibit must show in detail, construction, equipment, management, and results obtained. Each competitor must present a brief or report in printed form.

(3) A prize of \$1000 is offered for the best exhibit of a furnished house, for a family or group of families of the working class, designed in the interest of the crusade against tuberculosis. In addition to the prize of \$1000, two gold medals and three silver medals will be awarded. The prize and medals will be accompanied by diplomas or certificates of award. This prize is designed to

stimulate efforts towards securing a maximum of sunlight, ventilation, proper heating, and general sanitary arrangement for an inexpensive home. A model of house and furnishing is required. Each competitor must present a brief with drawings, specifications, estimates, etc., with an explanation of points of special excellence. Entry may be made under competitor's own name.

(4) A prize of \$1000 is offered for the best exhibit of a dispensary or kindred institution for the treatment of the tuberculous poor. In addition to the prize of \$1000, two gold medals and three silver medals will be awarded. The prize and medals will be accompanied by diplomas or certificates of award.

The exhibit must show in detail construction, equipment, management, and results obtained. Each competitor must present a brief or report in printed form.

(5) A prize of \$1000 is offered for the best exhibit of a hospital for the treatment of advanced pulmonary tuberculosis. In addition to the prize of \$1000, two gold medals and three silver medals will be awarded. The prize and medals will be accompanied by diplomas or certificates of award.

The exhibit must show in detail construction, equipment, management, and results obtained. Each competitor must present a brief or report in printed form.

(6) The Hodgkins Fund Prize of \$1500 is offered by the Smithsonian Institution for the best treatise that may be submitted on "The Relation of Atmospheric Air to Tuberculosis."

In October, 1891, Thomas George Hodgkins, Esq., of Setauket, New York, made a donation to the Smithsonian Institution, the income from a part of which was to be devoted to "the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man."

In the furtherance of the donor's wishes, the Smithsonian Institution has from time to time offered prizes, awarded medals, made grants for investigations, and issued publications.

In connection with the approaching International Congress on Tuberculosis, which will be held in Washington, September 21 to October 12, 1908, this prize of 1500 dollars is offered.

The treatises may be written in English, French, German, Spanish, or Italian. They will be examined and the prize awarded by a Committee appointed by the Secretary of the Smithsonian Institution in conjunction with the officers of the International Congress on Tuberculosis.

The right is reserved to award no prize if, in the judgment of

the Committee, no contribution is offered of sufficient merit to warrant such action.

The Smithsonian Institution reserves the right to publish the treatise to which the prize is awarded.

The detailed definition of this prize may be obtained from the Secretary-General of the International Congress or Secretary of the Smithsonian Institution, Charles D. Walcott.

(7) Prizes for educational leaflets:

A prize of \$100 is offered for the best educational leaflets submitted in each of the seven classes defined below. In addition to the prize of \$100, a gold medal and two silver medals will be awarded in each class. Each prize and medal will be accompanied by a diploma or certificate of award.

Competitors must be entered under assumed names.

A. For adults generally (not to exceed 1000 words).

B. For teachers (not to exceed 2000 words).

C. For mothers (not to exceed 1000 words).

D. For indoor workers (not to exceed 1000 words).

E. For dairy farmers (not to exceed 1000 words).

F. For school children in grammar school grades (not to exceed 500 words).

In Classes A, B, C, D, E, and F, brevity of statement without sacrifice of clearness will be of weight in awarding. All leaflets entered must be printed in the form they are designed to take.

G. Pictorial booklet for school children in primary grades and for the nursery.

Class G is designed to produce an artistic picture-book for children, extolling the value of fresh air, sunlight, cleanliness, etc., and showing contrasting conditions. "Slovenly Peter" has been suggested as a possible type. Entry may be made in the form of original designs without printing.

(8) A gold medal and two silver medals are offered for the best exhibits sent in by any states of the United States, illustrating effective organisation for the restriction of tuberculosis. Each medal will be accompanied by a diploma or certificate of award.

(9) A gold medal and two silver medals are offered for the best exhibits sent in by any state or country (the United States excluded), illustrating effective organisation for the restriction of tuberculosis. Each medal will be accompanied by a diploma or certificate of award.

(10) A gold medal and two silver medals are offered for each of the following exhibits; each medal will be accompanied by a diploma or certificate of award; wherever possible each competitor is required to file a brief or printed report:

- A. For the best contribution to the pathological exhibit.
- B. For the best exhibit of laws and ordinances in force June 1, 1908, for the prevention of tuberculosis by any state of the United States. Brief required.
- C. For the best exhibit of laws and ordinances in force June 1, 1908, for the prevention of tuberculosis by any state or country (the United States excluded). Brief required.
- D. For the best exhibit of laws and ordinances in force June 1, 1908, for the prevention of tuberculosis by any municipality in the world. Brief required.
- E. For the society engaged in the crusade against tuberculosis having the largest membership in relation to population. Brief required.
- F. For the plans which have been proven best for raising money for the crusade against tuberculosis. Brief required.
- G. For the best exhibit of a passenger railway car in the interest of the crusade against tuberculosis. Brief required.
- H. For the best plans for employment for arrested cases of tuberculosis. Brief required.

(11) Prizes of two gold medals and three silver medals will be awarded for the best exhibit of a work-shop or factory in the interest of the crusade against tuberculosis. These medals will be accompanied by diplomas or certificates of award.

The exhibit must show in detail construction, equipment, management, and results obtained. Each competitor must present a brief or report in printed form.

The following constitute the Committee on Prizes:

- Dr. CHARLES J. HATFIELD, Philadelphia, *Chairman*,
- Dr. THOMAS G. ASHTON, Philadelphia, *Secretary*,
- Dr. EDWARD R. BALDWIN, Saranac Lake,
- Dr. SHERMAN G. BONNEY, Denver,
- Dr. JOHN L. DAWSON, Charleston, S.C.,
- Dr. H. B. FAVILL, Chicago,
- Dr. JOHN B. HAWES, 2ND, Boston,
- Dr. H. D. HOLTON, Brattleboro,

Dr. E. C. LEVY, Richmond, Virginia,
Dr. CHARLES L. MINOR, Ashville, N.C.,
Dr. ESTES NICHOLS, Augusta, Me.,
Dr. M. J. ROSENAU, Washington,
Dr. J. MADISON TAYLOR, Philadelphia,
Dr. WILLIAM S. THAYER, Baltimore,
Dr. LOUIS M. WARFIELD, St. Louis.

THERAPEUTIC PREPARATIONS.

THE BAYER CO., LTD., 19, St. Dunstan's Hill, London, E.C.

We have received from this Company some specimens of their recent preparations of their products.

ARISTOL, an agreeable substitute for iodoform, is dependent for its action on the liberation of iodine in the presence of moisture. It is odourless and innocuous. It is a derivative of thymol, and contains 40 per cent. iodine; insoluble in water and glycerine, but soluble in alcohol, ether, chloroform, and fatty oils. The solutions should be made cool, kept cool, and in coloured bottles. As a powder it forms an antiseptic protective, and stimulates granulations. It is useful to dust over the line of stitches after operations. It has been recommended in otorrhoea and ozæna. It can be used as a solution in collodion and oils, as an ointment with lanoline or vaseline. Mixed with equal parts of boric acid it is effective in ear and nose troubles. We have used it in combination with anæsthesin as a snuff-powder after operations in the nose with great satisfaction.

PROTARGOL, a substitute for nitrate of silver, not precipitated by albumen or sodium chloride. It is a proteid silver (8 per cent.) preparation, soluble in water up to 50 per cent., without the precipitation powers of the ordinary silver salts. By using "Protargoloids" a 1 per cent. solution can be made by dropping a tablet in an ounce of water, previously crushing it to a powder. When 15 minims of glycerine is added a suitable application to the ear, throat, nose, and pharynx is prepared. It hinders pyogenic infections. In diseases of the eye protargol and argyrol are more useful than silver nitrate.

NOVASPIRIN decomposes in the intestine into nascent salicylic acid and methylene-citric acid, and it is claimed for it that it produces no tinnitus aurium, headache, or depression. In influenza Novaspirin has proved an excellent remedy; it promptly relieves the distressing pains, reduces the fever, and in general promotes the comfort of the patient. It is also equally valuable in the treatment of colds, such as coryza, tonsillitis, pleurisy, neuralgia, nervous headaches, tabes, and carcinoma. The administration of Novaspirin is not followed by profuse perspiration, because the drug is absorbed so slowly—a matter of importance when

diaphoresis is not desired, as in cases of weak patients, grave cardiac affections, chronic wasting diseases, and danger of severe hæmorrhages. It is an efficient and agreeable remedy in the various forms of rheumatism, both articular and muscular, as well as in gouty conditions. The dose is from 5 to 15 grains, given in a powder.

Rouse & Co., Wigmore Street, London.

ASTHMOL.—A preparation introduced by Messrs. Rouse & Co., of Wigmore Street, and of 10, Notre Dame, Nice, has been before the medical profession for several years and has met with great success. It is an elegant preparation, containing atropin and suprarenalin derivatives with hyponitrous acid, and is therefore likely to be useful in nasal affections (asthma, hay fever, and chronic inflammatory conditions of the mucous membrane). Rouse & Co., from an experience of some years, and from reports of many varied cases, claim that in Asthmol the practitioner has at hand a valuable remedy. It is used as a fine cloud produced by a useful little glass nebuliser, which can be carried in the pocket ready for use, and is therefore all the more valuable to a spasmodic sufferer.

BOOKS RECEIVED.

E. J. Moure, Professor attached to the Faculty of Medicine of Bordeaux, and **A. Brindel**, Clinical Assistant, Faculty of Medicine, Bordeaux. *Guide Pratique des Maladies de la Gorge du Larynx, des Oreilles et du Nez (Carités Accessoires Comprises): Practical Guide to Diseases of the Throat, Larynx, Ears, and Nose (Accessory Cavities included)*. With 358 illustrations, some in colours, in the text. Paris: Octave Doin. 1908.

Albert Gray, M.D.(Glasgow), F.R.S.E. *The Labyrinth of Animals, including Mammals, Birds, Reptiles, and Amphibians*. Vol. II. Pp. 252, with many stereoscopic photographs. 25s. net. London: J. and A. Churchill. 1908.

John Johnson Kyle, B.S., M.D., Professor of Clinical Otology, Rhinology, and Laryngology in the Medical College of Indiana, etc., etc. *Manual of Diseases of the Ear, Nose, and Throat*. Second edition, revised and enlarged, with 169 illustrations. Pp. 627. London: Sidney Appleton. 1908.

The Medical Annual, a Year Book of Treatment and Practitioner's Index. Twenty-sixth year. Thirty-two contributors. Numerous illustrations, plain, coloured, and photographic. Bristol: John Wright and Co. London: Simpkin, Marshall and Co. 1908.

Herbert Tilley, B.S.(Lond.), F.R.C.S.(Eng.), Surgeon to the Ear and Throat Department, University College Hospital, London. *Diseases of the Nose and Throat*. With 126 illustrations. Pp. 539. London: H. K. Lewis. 1908.



Schroter

Reproduced by kind permission of Messrs. Eckstein, Charlottenburg, Berlin.

THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

THE LATE PROFESSOR SCHRÖTTER.

OUR readers will learn with great regret of the death of one of the most highly respected pioneers in laryngology. Professor Leopold Schrötter von Kristelli, so well known as Professor Schrötter, was in the seventy-first year of his age, and might well have been expected to adorn our scientific circle for some time longer. The last act of his life was that of delivering his inaugural address as honorary president of the Congress of Laryngologists held at Vienna in commemoration of the achievements of Turek and Czermak, the founders of laryngology at Vienna. Professor Schrötter's works on laryngology are well known to our readers, and his lectures on diseases of the larynx and those of the trachea occupy, no doubt, an honoured place in every laryngologist's library. Deep as was his interest in laryngology, his mode of thought was too wide to allow himself to be limited to one specialty, and he accepted the post of Professor of Internal Medicine at the University of Vienna, after having filled that of Professor of Laryngology. He took up with the utmost enthusiasm the study of the modern means for the prevention and treatment of tuberculosis, and devoted himself heart and soul to the foundation and maintenance of the Alland Sanatorium near Vienna. His reputation was so great that it was considered necessary to have his opinion with regard to the lamentable case of the German Crown Prince, who was afterwards Emperor Frederick. He was present

at at least one of the meetings of the British Medical Association, where his contributions to the discussion are characterised by their brightness and point. All who met him will recognise the aptness of the application of these two qualities to Professor Schrötter in all his relations. Although the sitting of the International Congress was, by the request of the family, not cut short, its proceedings were temporarily suspended, and a number of delegates were deputed to offer their sympathy to Professor von Schrötter's widow and children. Among the more representative of the members of this deputation were Professors Chiari and Fraenkel, and Sir Felix Semon. Those of our readers who have had the good fortune to know the deceased professor personally will join most cordially in their expressions of sympathy and regret.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM IN CHILDREN.

At the last meeting of the Laryngological Section of the Royal Society of Medicine¹ a case of adenoids and slight deflection of the septum was brought forward for the purpose of eliciting opinions as to what operation, if any, was indicated. The discussion diverged somewhat from the original question, and, by the judicious courtesy of the President, was allowed to wander, as the Section obviously desired, in the direction of the consideration of the justifiability of "submucous resection" of the septum in children. In general the opinions coincided with those expressed by several speakers in the Section of Laryngology and Otology at the Toronto meeting of the British Medical Association.² Dr. McDonagh³ there expressed himself as follows: "Finally, as to the operation in children, I believe that, unless very necessary, it would be well to postpone it until more nearly full development of the nasal framework has taken place. Evidence of Eustachian or middle-ear catarrh, for instance, or other symptoms of gravity, would, I fancy, justify the operation in children, but in such cases surely no more of the cartilage or bone should be removed than absolutely required."

¹ *Vide* abstract report of proceedings in the present number of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, p. 252.

² *Loc. cit.*, vol. xxi.

³ *Loc. cit.*, p. 619.

Dr. Otto Freer's opinion was characterised by definiteness and comparative objectivity.¹ He said: "Of late purely theoretical objections have been raised against operating upon children before the fifteenth year, the reason given being that the septum takes an important part in the development of the adult nose, one author, seemingly having in mind the removal of the entire septum as the essence of the submucous resection, saying that 'the septum should not be removed during the years of active growth.' Properly done, the submucous resection never removes more than the deflected portion of the septum, and only in extreme cases does this equal one third of the area of the entire septum. The important upper anterior part of the cartilage under the triangular cartilages of the external nose is always spared, and there is therefore always a large enough frame left about the window made to maintain the form of the septum in its growth. During five years in which I have resected the deflections of thirty-two children between the ages of seven and fifteen, and of twelve between the ages of seven and eleven, I have seen no damage to the development of the children's noses. The parents would not have been slow to tell of any, and such of the children as I have seen long after the operation have shown, instead of nasal deformity, an improved physiognomy and appearance of health, due to the free nasal breathing established. An undesirable effect of growth noticed in some younger children was a tendency to a partial reproduction of the deflection, but never to any sinking of the nasal bridge. I have also found, although it has lately been asserted that the cartilage is not reproduced, that the septa of such children as I examined in this respect grew firm over the site of the window in the cartilage in a few weeks, and I attributed this to the great regenerative power of children, and to the careful saving of the perichondrium possible with my method of operating, which permits free and minute inspection of the entire operative field. The perichondrium is easily left upon and removed with the cartilage if not looked for. Nearly all my deviations in children were extreme, wholly blocked one nostril, and, if sigmoid, both, and injured the patient's health enough to absolutely demand resection. Children should, therefore, not be deprived of the benefits of the operation because of theoretical objections inspired by a timid imagination."

Other speakers fought rather shy of this question; however, important suggestions were made by Drs. Coakley, of New York,

¹ *Loc. cit.*, vol. xxi, p. 622.

and Dr. M. C. Smith, of Lynn, Mass. The former¹ had seen in children with high and narrow palatal arches and septal deformities very beneficial results follow the use of dental splints, which effected a widening of the arch, there being undoubtedly a straightening of the deflected septum and an increased patency of the nasal respiratory passages.

Dr. Smith,² speaking from the dentist's standpoint, thought if the dentist fulfilled his duty to young patients there would be little need of surgical operation on the septum in later life. He said: "In children under fifteen years of age with a deviated septum and enlarged inferior turbinates a deformity of the mouth was nearly always found. The arch was narrow and V-shaped, the vault high, and the first molars were not more than an inch apart, and might come entirely within the arch of the lower jaw. Such patients should be sent to the dentist and the arch of the upper jaw widened, not by simply tilting the teeth outwards, but by a plate made of vulcanised rubber that would come down over the outer edges of the teeth so as to hold them in their upright position. Pressure should then be applied over the mucous membrane as high as possible above the gingival margin, and the alveolar process forced out bodily, so that most widening took place in the median line. Now, if the jaw were widened half an inch it would be reasonable to suppose that the anterior part of each nasal cavity would be a quarter of an inch wider, and if the inferior turbinates were drawn an eighth of an inch away from the septum space enough for breathing would be obtained unless a grave condition existed. By means of work done in the mouth it was easy to separate the inferior turbinates an eighth of an inch from the septum and to draw down the septum materially."

Mr. FitzGerald Powell, at the recent meeting of the Laryngological Section, expressed a feeling of hesitation about operations in the nose in children. He preferred to wait until the patient reached the age of sixteen, because one could not be certain what influence submucous resection might exert upon the development of the nose. He asked those Fellows who had had experience of the submucous resection in children what their experience had been.

Dr. Tilley, in reference to this question, stated that deviation of the septum was not met with before the age of seven. Submucous resection was, he said, a difficult operation in childhood on

¹ *Loc. cit.*, p. 629.

² *Loc. cit.*, p. 628.

account of the scantiness of room. Whether or not the growth of the nose was interfered with by the resection was not yet known. Certainly more regenerative tissue formed in childhood after the operation than in adult life.

Mr. Westmacott had operated on a number of children, his rule being first of all to resect the turbinals and then to await the result; if this proved insufficient he performed Killian's operation, and in all his cases save one the result was excellent. He had in several cases observed thickening and swelling of the septum after the operation, but this disappeared entirely after a few months. He performed the operation without any fear of thereby interfering with the development of the nose.

Dr. Pegler spoke in favour of the Mounre operation, which he had several times performed in children under the age of six, and in one of his cases the result was extremely good, though with the others he was not quite so satisfied.

Mr. Barwell deprecated resection of the turbinals in young children and referred to the difficulty of performing submucous resection in them. In one of his recent cases a return of the obstruction had resulted from post-operative thickening of the septum.

It is obvious that there is still room for uncertainty and difference of opinion in regard to this question, and it is much to be desired that those who have been led to practise submucous resection in children will do their best to re-examine those patients on whom they have operated some years ago, and without fear or favour bring forward their results so as to establish a course of proceeding founded on objective evidence, and not merely on general impressions. At present we should venture the opinion that unless the symptoms are really urgent the operation should be postponed till the development of the nose is pretty well established, but in the opposite state of matters it is quite justifiable to perform it. The indications must, however, be rather more pronounced than in the adult.

CONTRIBUTION TO THE SURGICAL TREATMENT OF LARYNGEAL STENOSES.

BY DR. EMERICH VON NAVRATIL.

Professor of the Royal Hungarian University of Buda-Pesth.

(*Translated by* DR. DUNDAS GRANT.)

THE treatment of stenosis of the larynx and trachea forms one of the most difficult, important, and still imperfectly-solved questions in laryngeal surgery. The experiences which I have collected in this department, and the endeavours which I have made in this direction may, perhaps, lead us some distance towards the solution of the question. It is obvious that the stenoses which come chiefly under consideration are the chronic ones, but the acute are not to be left out of sight, as they often give rise to the development of the chronic.

Among the acute ones diphtheritic croup interests us in the first line. It is not to be forgotten that intubation, according to O'Dwyer's method, has frequently given good results; it affords speedy aid to the patients who are on the verge of suffocation, and in the majority of cases it renders tracheotomy avoidable. It would, however, be a mistake to think that it was the only means for combating acute diphtheritic stenosis of the larynx. Life-saving as intubation may be, it has, at the same time, to be remembered that it has its dangers—it may occasion decubital ulceration of various extent in the mucous membrane and cartilages of the larynx, which, in cicatrising, may give rise to a high degree of stenosis. According to my view it is, therefore, in cases of diphtheritic croup, in which the formation of the membranes lasts long, and where, also, intubation has to be carried out frequently and for a long time, preferable to open the trachea by operative means. It must be emphatically noted that laryngotomy or cricotomy is to be avoided, because in these operations the cannula goes into the region of the disease and forms a lasting hindrance to healing. In order to open the tracheotomy as far as possible from the seat of the disease we always make a low tracheotomy.

In those severe cases of diphtheritic croup in which the false membrane extends low down in the trachea, even as far as bifurcation, we have not gained much by the low tracheotomy, except in those cases in which the patients are able to cough out the already loosened membranes with greater ease through the large tracheotomy wound; in such cases we may endeavour to keep the wound open by means of hooks, and to extract the membrane

with forceps. In the most severe cases of diphtheria, in which the disease extends into the bronchi or their branches, we abstain from any surgical interference. Of course the serum treatment must be carried out side by side with the surgical.

In perichondritis after typhoid and variola, and in the stenoses arising from this, we have only one certain remedy—tracheotomy, by which we can on the one hand save the patient from the danger of suffocation, and on the other secure rest for the larynx, which is, in any case, the cardinal factor in the bringing about of the absorption of the inflammatory infiltration. The sooner we carry out tracheotomy the more certain is the result, and by its means we are able to prevent abscess formation and other troubles. The same is true with regard to stenoses arising from trauma or infection; tracheotomy ensures in cases of not too great severity rapid and certain recovery.

Tracheotomy is also necessary when the larynx is obstructed by a foreign body, if this cannot be removed in good time by intra-laryngeal methods. Smallish sharp fragments of bone and splinters bore their way so deep into the soft parts of the larynx or into the ventricles of Morgagni that we may be unable to see them with the laryngeal mirror. I have had cases in which the patient himself did not know for certain whether the foreign body had got into his larynx, the most he could say being that he supposed it to have done so. After a shorter or longer time after tracheotomy the patient coughed out the foreign body, probably after the rupturing of an abscess occasioned by it.

Syphilis and tuberculosis are the most frequent causes of subacute laryngeal stenosis. Those caused by the former occur chiefly in the secondary and tertiary stages of the disease, although in the tertiary period it is most frequently the chronic form which comes under observation. In the treatment of subacute luetic laryngeal stenoses we possess in mercury, in the form of grey ointment, a very valuable means of treatment, but we must always give it in very large doses; the action of intra-muscular injections of sublimate is much quicker, and in these cases quickness of action is often of importance. In cases in which the dyspnoea has not yet reached such a high degree as to shorten life, we may postpone opening the air-passages. The same is true for those cases in which the disease has its seat in the soft parts, and any immobility of the crico-arytenoid joint is only a result of the infiltration of the soft tissues. When, however, the cartilage itself is diseased, or when the cause of the stenosis is an extensive infiltration with deep

ulceration, the dyspnoea being in such instances very extreme, we must not delay performing tracheotomy, which is the quickest and safest proceeding.

The stenoses which are limited to the soft parts yield generally to anti-luetic treatment; there are, however, rare cases in which it is necessary to resort afterwards to dilatation. Even in chronic forms we frequently see a subsidence of the symptoms after tracheotomy and anti-syphilitic treatment, but in these we are more frequently driven to carry out the systematic dilatation treatment. I have always practised intubation according to O'Dwyer's method. The glottis became wider, one of the crico-arytenoid joints, and sometimes even both of them, again recovered their mobility, but in those cases in which there was loss of substance of the cartilage, intubation, even of the highest degree, produced not the slightest effect, and the cannula had to be worn permanently. Such cases were more frequent in my hospital practice from one to two decennia ago; now, when even the poor and less intelligent patients seek medical advice at an early stage, such cases are extremely rare. Tuberculous disease of subacute nature often produces narrowing of the glottis; in those cases it is, therefore, from the point of view of treatment, of the greatest importance to do a low tracheotomy, but by means of this we place the larynx in absolute repose, and this is the most powerful healing factor. I do not refer here to the perichondritides and ulcerations taking place in the advanced stages of phthisis; in such cases tracheotomy merely postpones the fatal termination for, at the most, a short time; we should, therefore, beware of tracheotomy in the phthisical. In stenosis due to tuberculous granulomata the best plan is in the first instance to open the trachea, and afterwards, when the operative inflammatory reaction has subsided, to carry out curetting, after anæsthesia with cocaine or alypin. I have seen after this treatment good results in cases in which the strength of the patient was still good. There was no fever and only slight affection of the apex of the lung. In a few of such cases I tried laryngofissure and removal of the massive granuloma by extra-laryngeal method with most satisfactory result. Intubation was fruitless, and I cannot recommend it in these cases.

Special interest attached to a disease which, having been imparted by immigrants from Russian Poland, Galicia and Roumania, appeared first in the northern districts of Hungary, but has spread more lately over the whole Hungarian Lowlands. This disease—scleroma—gives rise to extensive changes in the nose,

the upper lip, the pharynx, larynx and trachea, as also in the lower air-passages; the affected parts become callous, adhesions of various forms take place, such as semilunar membranes and annular diaphragms, as also tubular strictures in the air-canals. The changes which scleroma sets up in the larynx give rise to stenosis in this part of varying grade, leading to dyspnoea or even suffocation. The hardening of the tissues develops slowly, and at the beginning the affected parts are soft but gradually become indurated. Rhino-laryngo-scleroma generally goes along with a dry catarrh; there is a characteristic smell similar to that of ozena, and, indeed, the scleroma bacillus is closely allied to Friedländer's capsulated diplococcus and the diplococcus of ozena, but it can be distinguished, and is so typical that when one has once smelt it it can be easily differentiated from the smell of ozena. The treatment of scleroma can be only local and surgical. The initial soft infiltration of the vocal cords is best dealt with by intubation. Diaphragms can be dissected out and removed by means of Kransé's double curette, and afterwards, in order to prevent adhesions, intubation can be practised. When the scleroma has become more extensive and harder, and dyspnoea or possibly suffocative attacks have been produced, we have to perform tracheotomy and afterwards practise intubation, with, as a rule, good results, as after from four to six weeks of intubation we can generally remove the cannula. During the period of the intubation the patient may inhale a 2-3 per cent. solution of common salt twice daily. Recurrences are not uncommon, but the renewal of intubation again produces improvement. When the scleroma extends to the deeper parts of the trachea we are limited to palliative measures. The application of the Röntgen rays, which can be employed with advantage in scleroma of the nose and lip, is impracticable in the larynx on account of the irritative and even dangerous effect on the vagus.

Stenosis of the larynx and trachea is frequently caused by new growths, which form sometimes in the interior of the air-tube, sometimes in the surrounding neighbourhood, and in the latter event may exercise such pressure from without as to narrow the lumen. We may enumerate the larger mucous and fibrous polypi, the papillomata, sarcomata, carcinomata and goitres, although seldom there occur cases in which large polypi, especially the fibrous ones, obstruct the glottis and give rise to dyspnoea, which may vary from the slightest up to the highest degree. When endo-laryngeal methods are no longer of avail I perform

laryngo-fissure and remove the growth through the wound. After primary suture I have obtained complete healing for the most part in six or seven days. When asphyxia threatens I first perform tracheotomy and remove the growth through the mouth, or, if this is impossible on account of the size, I do it by means of laryngo-fissure. In multiple papillomata, if these cause no dyspnoea, we practise endo-laryngeal removal, but when there is a threatening of suffocation we do low tracheotomy and after a few days remove the tumour through the mouth if the reactive inflammation of the trachea and larynx has subsided. As recurrence cannot be guaranteed against we leave the cannula for a considerable time, say from three to five months; if actually a recurrence takes place, especially when the papilloma is circular, I split the larynx in the middle line. After complete removal of the papillomata I transplant a Thiersch's graft into the larynx and trachea; by this means it has several times been my fortune to keep the patient free from recurrence; the larynx remained completely free for the passage of air, the vocal cords acted promptly, and phonation was quite satisfactory. In multiple papillomata in children under ten or twelve years I was guided by their effect upon the breathing, whether fairly free or difficult. I practised laryngo-fissure and extirpated the papillomata through the wound, as complete removal of the papillomata through the mouth never succeeds in such children. When suffocation came on I carried out this treatment after a prophylactic tracheotomy. In recent times I have found the cases remain free from recurrence if the open treatment of the wound is carried out, whereas formerly, with primary suture of the thyroid cartilage, recurrences were the rule.

Primary carcinoma of the larynx, whether affecting respiration or not, should of course be eradicated, and according to the extent of the disease this should be by partial or total extirpation of the larynx. In the latter event I have always performed a low tracheotomy beforehand and carried out the extirpation of the larynx only after a few days, when the reactive inflammation had subsided and there was no catarrh in the bronchi or lungs.

Sarcomata are rare in the larynx, and when they are small I have always removed them by endo-laryngeal methods. In two cases in which they gave rise to dangerous interference with breathing I performed extirpation of the larynx with preliminary tracheotomy. Lympho-sarcomata and carcinomata of the neck should be removed as early as possible before they have become too closely adherent with the surrounding tissues; otherwise we

must content ourselves with a tracheotomy on the threatening of suffocation.

Dyspnea, or possibly dysphagia produced by goitre, is an absolute indication for strumectomy with, of course, conservation of the healthy parts of the thyroid gland. If a dense goitre has eaten into the wall of the trachea or softened it, we must open this tube, insert a cannula and avoid removing it, because the trachea when affected in this way readily collapses. If the patient is in danger of suffocation I perform a tracheotomy, if possible, but in some cases this cannot be carried out because the trachea is completely covered by the goitre. In such cases we open the larynx and introduce a Koenig's cannula on account of curving of the trachea. In this way I have been able to save the patient from suffocation in several cases of severe strumitis.

One very frequent cause of chronic tracheal stenosis arises from delay in the removal of the tracheotomy tube, retarded decannulisation and the irritation of the mucous membrane thereby caused, which leads to ulceration, growth of exuberant granulations or ankylosis of the crico-arytanoid joint. Decubital ulcers may form at the point corresponding to the lower extremity or to the convexity of the cannula, and this may be surrounded by active granulations. The symptoms which this kind of stenosis produce show themselves already before the removal of the cannula, but they may only become evident after this, that is to say when the granulations previously referred to have been converted into cicatricial tissue. In this event we notice immediately after the removal of the cannula or after some hours or even later that the patient breathes with difficulty. We must on this account, as a preventive, also remove the cannula as early as possible and change it frequently, supervising carefully the tracheal wound, protecting it from every infection, and using cannulae of different lengths. The most important thing, however, in this connection is that we avoid cutting the cricoid or the thyroid cartilage and that, as already indicated—whatever be the reason for which we have opened the trachea—we do not introduce the cannula into the region of the disease but as far as possible from it, therefore in the trachea, that is to say we always do a low tracheotomy. This is naturally a more difficult operation and calls for some skill and presence of mind, but it is the best preventive against the formation of stenoses. It must be admitted that also after low tracheotomy, ulcerations, pressure-sores, and, rarely, granulomata may form in the trachea, but I have only observed these in tuberculous children or in adults. A rare occurrence, but

not an impossible one is that in such individuals an ulceration through the trachea may give rise to the burrowing of pus into the mediastinum, or still more rarely the cannula may erode the innominate artery. We may, however, prevent all these if we change the cannula frequently, using sometimes a longer and sometimes a shorter one, and during the dressing carry out the strictest antiseptic precautions. In cases in which stenosis has developed after or as the result of laryngotomy or cricotomy, it is in the first instance desirable to remove the cannula which does not lead to the subsidence of the disease of the larynx, and then perform a low tracheotomy and introduce a cannula into the trachea. This is often sufficient to bring about recovery as in this way we remove from the larynx the cannula, which acts persistently as an irritating foreign body. If the stenosis has already reached a high degree and has been of long standing, and if, moreover, after the transference of the cannula the condition has not improved, we carry out systematic dilatation by means of O'Dwyer's tubes.

Among the very frequent and most obstinate forms of chronic stenosis is the one which results from decubital ulceration, caused by intubation. The narrowing is mostly in the larynx at the point corresponding often to the lower extremity of the tube on the anterior wall of the larynx, or in the neighbourhood of the cricoid cartilage, where the tube presses upon the swollen mucous membrane. Whether the decubitus is attributable to the diphtheritic process alone, as many say, or to the long duration of the intubation, or, as is most likely, to both factors together, I do not propose to discuss more minutely at present. The fact is that I have seen after diphtheria extensive cicatrices on the mucous membrane and erosions of cartilage only in those cases in which the patient had been intubated for a considerable time without interruption. The treatment of these forms of stenosis is extremely difficult, and is still an unsolved question in surgery. In illustration of this troublesome state of affairs I will quote the following case: A child, aged two, was attacked with diphtheria in March, 1905, and was intubated on account of an attack of suffocation. From March 29 to April 5 intubation was carried out eight times, and the tube remained from seventeen to twenty-two hours in the larynx; the child's condition varied and changed for the worse, with suffocation, etc., until at last, on April 6, a low tracheotomy had to be made. On account of impermeable stenosis laryngo-fission was carried out in the second half of June, the cicatricial tissue was extirpated and Thiersch's grafts transplanted. At first the result

seemed to be satisfactory, but the grafts necrosed, were ejected, and the removal of the cannula was not possible. In autumn of the same year a circular resection of the stenosed part of the trachea was made, but the margins of the wound only united in the posterior parts and gaped open in front. Lastly, in April, 1906, another thorough operation was carried out, the trachea being exposed as low as possible, an extensive circular-constructed part excised, and the margins of the tracheal wound held close together by means of a closely applied para-laryngeal suture. The operation was successful and the tracheal wound united together in a ring circularly. After the subsidence of the reactive inflammation the patient was intubated, beginning with the smallest tube, then extending to No. 7, at first for half an hour at a time, and ultimately two hours. The intubation was carried out with short pauses in my wards in this way up till October 8, 1906, continuously. At this last date the following was the condition: with the cannula occluded the patient was able to breathe freely for two hours, then gradually with more and more difficulty, till ultimately he became cyanotic and had attacks of suffocation. Undoubtedly the larynx was the seat of pronounced loss of substance of cartilage and muscle, ultimately the lumen slowly got narrowed whenever it was not intubated, and its sides fell together. In this case one might still further try the following proceedings: (1) To again split open the larynx, excise a portion of the anterior wall and cover it with thick flaps taken from the lateral parts of the neck, in such a way that the larynx has a distinctly larger and wider lumen, that is to say, that we construct a new anterior wall to it. This extensive operation, however, could only be carried out with the hope of good result at a later date, say when the child is twelve or fourteen years old. (2) Killian recommends in such cases the implantation of a lamella of cartilage, bone or celluloid, but this proceeding can scarcely produce any good result, as the fundamental factor for success is that the embedded plate should lie for a considerable time at absolute rest, which, with the larynx, is not to be obtained. (3) A more successful result is to be expected from laryngostomy, an operation which Barlatier and Sargnon have described minutely, and which I shall sketch as follows: The idea of the operation originates in reality with Killian, and the French authors named have carried it out in eight cases with success. They first performed a low tracheotomy, then they slit up the larynx, or at the same time the trachea, according to the extent of the stricture, precisely in the middle line, and stitched the mucous membrane to the outer skin; then they placed in the canal thus

formed a red rubber drainage-tube, which they fixed with silk threads to the neck; the indiarubber tube thus introduced has the effect of causing softening and absorption of the cicatricial tissue. It is freely besmeared with vaseline, placed in the trachea, and covered with a dressing. In order for this to succeed it is necessary for the end of the drainage-tube to be warmed over the flame and rounded off. When, having begun with No. 15 or 16, the drainage-tube of size No. 31 has been reached, there was invariably established a wide artificial windpipe. Progression is very slow, and on the average it goes on from three to four months before the normal calibre has been attained; the new canal is formed by granulations and gets covered with epithelium from the skin. When all these processes have been completed and a lumen has been made of a width corresponding to the age of the patient, the new air-tube can be closed in front by a rawing of the margins of the wound or a plastic operation.

The greatest amount of devastation of the larynx arises from wounds such as those resulting from suicidal cuts, as also from thrusts, blows, etc. In the case of cuts we see divers forms of wounds, up to complete halving of the larynx in various directions, most frequently between the hyoid bone and the thyroid cartilage. The results depend upon the nature and depth of the wound, taking the form of cicatricial adhesions of the mucous membrane, deformity of the cartilaginous framework, complete funnel-shaped blocking, shrivelling up of the surrounding parts after extrusion of a large cartilaginous sequestrum. I will illustrate by means of a clinical history my method of dealing with such cases: A patient, aged thirty, with suicidal intention, cut his throat on June 13, 1902, in Berlin, using for the purpose a bookbinder's knife. In consequence of the profuse hæmorrhage he was brought in an unconscious condition to the wards of Professor Koenig, who, in order to put his life in safety, performed tracheotomy and stitched up the laryngeal wound. The patient was extremely restless, so that the stitches gave way; suppuration supervened, which was increased by the escape of saliva and liquids drunk; the result was a considerable loss of substance. During this time the patient, who had an hereditary tendency to insanity, underwent an intensification of his melancholy condition, on account of which he had to be removed to the psychiatric wards; from there he was sent, being a Hungarian, to Lipometzo Insane asylum at Buda-Pesth, and then owing to this institution being overfull he was removed to a similar one at Nagy-varad. Here the cannula was removed from the tracheotomy wound for the purpose of making an attempt



FIG. 2



FIG. 1

TO ILLUSTRATE DR. EMERICH VON NAVRATIL'S "CONTRIBUTION TO THE SURGICAL TREATMENT OF LARYNGEAL STENOSES."

at decannulisation, but as suffocation supervened, and the tracheotomy wound closed up a new cannula was put into the remains of the suicidal wound. On June 19, 1905, the patient came to my wards in the following condition (Fig. 1):

Over the pommum Adami there was a transverse cicatrix 16 cm. in length and at the level of the arytenoid cartilage a loss of substance of the size of a five-krone coin, the margins of which were thickened by cicatricial tissue; in the depths of the wound the ventricular bands could be seen, the arytenoid cartilages were immobile and the epiglottis intact; the entrance of the œsophagus was visible and could be still observed during deglutition. In the opening above described there lay a thin cannula and alongside of it there flowed saliva, fluid drunk and food, so that the whole interior surface of the neck was in an eczematous condition; the patient was voiceless. In the first instance I did a low tracheotomy under circumstances of considerable difficulty, as the trachea had been dislocated by the cicatrization following the previous tracheotomy. As soon as the patient could breathe freely in this way through the cannula, I devoted my attention to the treatment of the eczema, which lasted a long time, so that it was only on September 20, 1905, that I could take steps for closing the opening in the neck. I formed two flaps from the neighbourhood of the opening of such a size as to overlap the loss of substance to the extent of 1 cm. in vertical measurement, both above and below; the length of each flap was 4.5 cm. Between the opening and the mesial border of the flap there remained a pedicle of $1\frac{1}{2}$ cm. in length for the nourishment of the flap. After rawing the upper and lower parts of the opening the flaps were turned round and stitched together in the middle line, as also were the upper and lower margins with the freshened edges of the wound. After the application of a dressing the patient was fed by means of the œsophageal tube and absolute rest was enjoined; the restless patient, however, could not maintain this, and the flaps only united in part. I was, therefore, obliged to make a new plastic operation after rawing and suturing the margins, which succeeded in so far as there remained only a fistula of the size of a pin-head, and which afterwards I succeeded in closing up (Fig. 2).

The patient presented himself to me on January 5, 1908, two and a half years after the operation; he breathed freely through the mouth and larynx, and the voice was quite audible. This plastic operation has given me, even in the most severe cases, excellent results when everything else has failed.

A NOTE ON THE DIGITAL EXAMINATION OF THE NOSE.

BY DAN MCKENZIE, M.D.,

Assistant Surgeon Central London Throat and Ear Hospital.

PERHAPS the advisability of supplementing by palpation with the finger the information we obtain by an inspection of the nose is not so frequently remembered as it ought to be. This remark applies, of course, only to the examination through the anterior nares. Without doubt the causes which have led to the neglect of such a useful source of information have been, firstly, the physical difficulty, often indeed insuperable, of inserting the finger deep enough in the nose to feel anything at all; and secondly, the knowledge that a digital examination through the anterior nares always produces great discomfort and sometimes actual pain.

On the other hand, it cannot be denied that on occasions when circumstances are quite favourable—the nasal passages wide, the patient under an anæsthetic, etc.—the opportunity is too often let slip. And experience teaches that patient and gentle perseverance assiduously practised soon confers the knack of being able to insert the finger into even narrow nostrils with very little discomfort to the patient. Further, if the patient is under an anæsthetic nothing short of considerable physical disproportion between the examiner's finger and the nasal passage should deter him from making an attempt. Without an anæsthetic the examination is no more than uncomfortable unless the finger is pushed in with a brusque determination to carry out the examination at all hazards.

The *method* generally recommended is as follows: The little finger is always employed, and as it is, save in septal palpation, inserted with the palmar surface turned towards the external wall of the nose, the right hand must be used for the right nostril, and the left for the left. The finger should be well lubricated. The surgeon stands in front and a little to one side of his patient, with his free hand on the top of the patient's head to prevent it being withdrawn at a critical moment. At first sight it might be supposed that the chief obstacle to the passage of the finger would be the vestibular region with its circumscribed cutaneous orifice, but this is not the case. Even small and collapsed alæ are capable of considerable dilatation by the finger if plenty of time be given. The real isthmus lies at the entrance to the osseous nares, where, that is, the cavity is ringed round by the bony floor below, the

sharp edge of the superior maxilla with its ascending process to the outer side and above, and the septum mesially. Here it is that the patient feels most pain, particularly if the insertion is being carried out too hurriedly. In many cases when the finger is caught in this ring gentle pressure against the septum, cartilaginous at this point, will push it to one side sufficiently to enable the finger to pass. If such gentle pressure is ineffective then further attempts should be abandoned. The septal cartilage is often very thin, and to risk its fracture would be unpardonable. Having once safely traversed the strait and narrow part the bulbous finger-end comes to lie in a roomier cavity, while the isthmus is occupied by the less bulky parts of the finger proximal to the last phalangeal joint. The examiner is now sensible that he has reached the middle meatus by feeling the pressure of the hard, rounded, lower edge of the middle turbinal against the upper side of his finger, while below he will be able to make out the superior surface of the inferior turbinal body. Under ordinary conditions of health and normal structures the finger can be pushed but a little further back, its onward progress being prevented by the gradual convergence of the nasal walls. But in disease, particularly in ethmoidal softening and suppuration, where the middle turbinal is carious, destroyed, or flattened against the septum, it is frequently possible to reach as far back as the posterior ethmoidal region, and so to interrogate the lateral wall of the middle meatus along its whole extent.

The finger is steadily pressed against every part of the nose with which it comes into contact. In health this pressure everywhere meets with smooth mucous membrane and definite resilient resistance. Nowhere can the surface be breached. But in ethmoidal disease even gentle pressure breaks down the softened and boggy tissues, so that, as the finger palpates here and there along the region, a well-defined mental picture is quickly formed portraying the extent, and even, in some degree, the depth of the disintegration. And curetting will then be carried out with a confidence and accuracy, absent when one has to rely upon inspection alone. After several strokes of the curette the finger can again be inserted, and so the operation conducted from start to finish under safe and easy guidance. Further, in cases where the disease is limited to one particular area of the ethmoidal labyrinth, the information obtained by palpation enables us to restrict our activity to that area, and to that area alone.

When, in cases of ethmoidal disease, we know or suspect that

the antrum is likewise affected, the finger can be made to break through the membranous diaphragm in which lies the slit-like *ostium maxillare*. Thus we can actually enter the antral cavity, and occasionally obtain information as to the state of its lining membrane. Through the opening so made polypi, when present, will be felt as pulpy, slippery bodies. And through this opening also, enlarged by the enrette if necessary, the antrum can subsequently be washed out, and in some cases—not, of course, in all—the patient may thus be saved the ordeal of a more extensive and severe operation. I have never found any harm follow this proceeding even when the antrum contained no pus, for in these cases the diaphragm quickly closes again.

Palpation of the septum is particularly useful in performing the operation of submucous resection. In order to feel towards the middle line the finger is, of course, turned so that its sensitive anterior surface faces in that direction. Thus the left hand must be used for the right nostril, and *vice-versâ*. During the operation, after the septal cartilage and a portion of the vomer comprising the anterior deflecting portions of the septum have been removed, we are frequently a little puzzled to know whether or not the posterior regions are quite patent. In this quandary no method of examination has in my experience proved so valuable as palpation. Time and again it has happened that inspection under even brilliant illumination has failed to give warning of the presence of a bony spur or deflection lying very far back and obstructing the nasal passage more or less completely. The absence of the anterior portions of septum permits of the insertion of the little finger much more easily than under ordinary conditions, and the posterior obstruction can then be located to a nicety, and its entire removal through the window in the mucoperichondrium ensured. In these cases the insertion of the finger is quite safe on the unwounded side, but on the wounded side care must be exercised not to let the tip of the finger catch in the mucoperichondrial flap as it is passed back.

In all cases of tumour or ulcer in the nose, a careful attempt to palpate the lesion should be made, and it will generally be found that the information so obtained influences the diagnosis very materially.

It is, of course, true that when the examiner possesses thin fingers, digital palpation of the nose is easy, and so for the rhinologist to belong to the "lean and hungry" tribe is a very present advantage.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF
MEDICINE—LARYNGOLOGICAL SECTION.*Sixth Ordinary Meeting, April 3, 1908.*J. B. BALL, M.D., *President, in the Chair.*

The following cases, specimens, etc., were shown :

AN AUTOGRAPH LETTER BY JOHANN NEPOMUK CZERMAK ; BORN JUNE
17, 1828 ; DIED SEPTEMBER, 16, 1873.

BY DR. JOHNSON HORNE.

"The letter is dated December 1, 1869, and is written from Leipzig. In 1869 Czermak resigned the Chair of Physiology in Jena, and withdrew to Leipzig, where he was made Honorary Professor of Physiology at the University, and where he continued to reside until his death in 1873. The letter relates to a proposed visit to Sir John Simon in London, which Czermak was obliged to postpone for a month pending the completion of the purchase of the site in Leipzig upon which he built his house. In the grounds of his residence he built a private laboratory, and also a large hall full of ingenious contrivances for experiments and demonstrations in which to deliver lectures on physiology, and which he called the 'Erklärungs—Tempel.' From a perusal of subsequent correspondence it would seem that failing health did not permit Czermak to make the contemplated visit to London. The letter is written in excellent English, and on English note-paper."

A CASE OF LARYNGEAL GROWTH IN A WOMAN, AGED FORTY-FOUR
(? TUBERCULOSIS).

BY DR. JAMES DONELAN.

The patient, a married woman, had had twelve children ; the last two were stillborn, and these were followed by two abortions. There seemed to be no evidence of syphilis ; her husband was, however, at present in hospital suffering from some form of intestinal cancer. Some years ago she had a similar "attack of hoarseness," lasting six weeks, associated with "bronchitis," for which

she attended the Chest Hospital. She had little cough and no expectoration. There was dulness over both apices, and some moist sounds over the right. The palate, pharynx, and larynx showed marked anæmia. There was a large swelling occupying the greater part of the right vocal cord, and a smaller white one, partly subglottic, at the junction of the cord and vocal process.

Dr. DONELAN added that the patient had been under iodide of potassium for a week and the smaller growth had now disappeared.

Mr. CLAYTON FOX said that the history suggested syphilis, and this, taken with the improvement under potassium iodide, rendered the diagnosis of syphilis undoubted.

TWO CASES ILLUSTRATING THE EFFECTS OF LONG-NEGLECTED ADENOIDS ON THE DEVELOPMENT OF THE UPPER JAWS AND NASAL SEPTUM.

BY DR. DONELAN.

A girl, aged sixteen. Large mass of adenoids removed six weeks ago. Deafness somewhat relieved thereby. Left middle turbinal much enlarged, anterior end looks cystic. Marked deflection of septum to right.

Boy, aged eleven. "Always snored," nose almost quite obstructed at six years; constant nasal catarrh. Large quantity of adenoids removed two years ago. General hypertrophic rhinitis. Septum presented remarkable S bend in whole extent.

The PRESIDENT remarked that the deformity of the jaws in the first case was only moderate, while in the second case the palate was quite flat, the jaw wide and the teeth regular. It was doubtful whether, when the arched palate and other deformities of the jaws were present, these were due to adenoids, for they appeared when the adenoids had been removed before the time of the second dentition. He thought heredity played an important part in these cases.

Dr. DONELAN asked whether the nasal septum should be operated upon now or later.

Mr. SCANES SPICER thought the jaws were really rather good, and there was no irregularity of the teeth. The septum in both cases was bent, that in the female patient being pushed over by the middle turbinal. His opinion with regard to treatment was that the nose should be cleared by reducing the hypertrophic rhinitis first of all, and then later, if this was insufficient to obtain free nasal respiration, resection of the septum might be performed, or the turbinal removed.

Mr. FITZGERALD POWELL hesitated about operations in the nose in children. He preferred to wait until the patient reached the age of sixteen, because one could not be certain what influence submucous resection might exert upon the development of the nose. He asked those Fellows who had had experience of the submucous resection in children what their experience had been.

Dr. TILLEY said the connection between the arched palate and

adenoids was by no means clear. He had recently read a most interesting article in *The Laryngoscope*, by Mosher, of Boston, in which evidence was led to show that septal deviation in children was connected with the irregular eruption of the incisor teeth springing from the premaxillary bone. Regarding the question of operating on the septum in children, it was known that deviation of the septum was not met with before the age of seven. He had asked Dr. Freer, of Chicago, his experience on this point, and he had stated that he operated on quite young children without any compunction. He had never found any perichondritis or the development of thickenings from the production of an excessive amount of formative material to follow the operation. The submucous resection, the speaker said, was a difficult operation in childhood on account of the scantiness of room. Whether or not the growth of the nose was interfered with by the resection was not yet known. Certainly more regenerative tissue formed in childhood after the operation than in adult life.

MR. WESTMACOTT said he had operated on a number of children in Manchester. His rule in these cases was first of all to resect the turbinals, and then to await results. If this proved insufficient he performed Killian's operation, and in all his cases save one the result was excellent. In several cases he observed thickening and swelling of the septum after the operation, but this disappeared entirely after a few months. He performed operation without any fear of thereby interfering with the development of the nose.

DR. PEGLER had several times done the Moure operation in children under six, in cases where a fine probe could not pass through the nose, and in these cases it was well worth doing. One of his cases did extremely well; the others were not so pleasing, because the septum seemed to spring back to its original position. He had adopted this operation as being simpler and easier than the submucous resection in young children.

MR. HAROLD BARWELL deprecated any resection of the turbinals in young children. The submucous resection was more difficult than it looked, because of there being so little room to work in. In a case he had done recently, a return of the obstruction had resulted from post-operative thickening of the septum.

THE PRESIDENT said that the cases under discussion were probably old enough for operation.

DR. DONELAN expressed his pleasure that the exhibition of these cases had been productive of an interesting discussion. He did not purpose resecting the turbinals, but would use the galvano-cautery in the case of the boy, and would perform the submucous resection in the case of the girl.

TWO RADIOGRAPHS TO ILLUSTRATE THE VALUE OF THE X RAYS IN SOUNDING AND WASHING OUT THE FRONTAL SINUS.

BY DR. STCLAIR THOMSON.

When unprovided with the X rays it was usual for us to depend upon the direction taken by the cannula to decide whether the frontal sinus has been entered or not. In photograph "A" it

was seen that the point of the cannula passed up towards the frontal sinus, and that the portion of it outside the anterior nares lay flat against the upper lip. These two points might make us think that the frontal sinus had been certainly entered, particularly when pus could be washed out, as it was in the case to which this photograph refers. But on the screen, as shown in Fig. A, it would be seen that the cannula had not entered the fronto-nasal duct, but had passed up into an anterior ethmoidal cell, and that its point was pressed against the floor of the anterior fossa of the skull. It would readily be recognised that any roughness in manipulation in this area might have serious results. Fig. B showed the same case, with the same cannula, where the instrument was, with the help of the X rays, securely guided up into the centre of the frontal sinus.

Dr. H. TILLEY asked the members whether it was not the case that one knew unmistakably when the point of the cannula was in the frontal sinus. In disease it was more easy to enter the sinus than in health, and in disease the feeling experienced when the point of the instrument came into contact with the thickened and softened mucous membrane was to him unmistakable.

Mr. WESTMACOTT found considerable difficulty in making sure when he had reached the sinus.

Mr. CHICHELE Nourse said he had found it easy to prove that one was in the sinus if a sufficiently long and curved cannula were used, and if with the instrument *in situ* a similarly curved probe were laid on the outside of the nose, corresponding with the position of the cannula inside. At times, no doubt, the point of the instrument failed to enter the frontal sinus, coming to a stop in a fronto-ethmoidal cell, but when this occurred he noticed that the handle of the cannula stuck out more than when it was right inside the sinus.

Dr. WATSON WILLIAMS said that in doubtful cases where we were not sure of having reached the sinus the radiograph was of value.

Mr. CLAYTON FOX said that when the middle turbinal was removed we should remember that the infundibulum was the highest of the openings in the hiatus semilunaris. The infundibulum might, however, open into an anterior ethmoidal cell.

CASE OF THYRO-LINGUAL FISTULA TREATED BY ELECTROLYSIS AND EXCISION. (PATIENT AND MICROSCOPICAL SECTIONS.)

By Dr. DUNDAS GRANT.

Dr. DUNDAS GRANT said this was the third operation. The first, carried out by an eminent operating surgeon, was followed by recurrence. Dr. Grant performed the second operation—simple and apparently complete dissection—in 1904, with the same result. In 1906 he again operated, but before excision he introduced an

electrolytic wire up the whole length of the sinus, and Dr. Lewis Jones effected the electrolysis. Dissection was then carried out up to the foramen caecum of the tongue behind the hyoid bone. The result now, two years after the operation, appears to be quite satisfactory. The scar in the skin is quite free, and the cord of the sinus cannot be felt. Dr. Grant did not know in what proportion to attribute the cure to the electrolysis and the dissection respectively. In the case shown by Dr. McKenzie and himself (January and February meetings), the canal of the sinus was so narrow and contracted that electrolysis would have been impracticable, but in any appropriate case Dr. Grant would be inclined to try electrolysis in the first instance.

POLYPOID GROWTH FROM LARYNX (LYMPHANGEOMA).

By MR. H. BETHAM ROBINSON.

Man, aged thirty-five, had complained of increasing hoarseness for five years; started after a blow over the larynx. No pain. Polypus with slender pedicle attached in anterior commissure just under left cord about the size of a small plum-stone. Movements of cords natural, except some mechanical interference in phonation. Rest of larynx healthy. The growth was removed with forceps through a Killian's tube. Its structure showed the connective tissue traversed by large dilated lymphatics; epithelial surface normal.

THE CASE OF INTRINSIC NEOPLASM OF LEFT VOCAL CORD IN A MAN, AGED SEVENTY-SIX.

(Shown at the last meeting, in June, 1905, and in February, 1906.)

By DR. SCANES SPICER.

This case (interesting on account of the unusual and suspicious appearance of the growth, and the advanced age of the patient) was operated on, as before, with Mackenzie's laryngeal forceps under cocaine. The growth was completely cleared out at one sitting in about five fragments, and a loud but hoarse voice at once replaced the previous aphonic attempt. The masses, as before, resembled bright, white, shining clumps of Iceland spar, or the surface of coarse tripe, and their site of attachment was comparatively small over the front half and above the left vocal cord. There was a smaller fringe over the right vocal cord. The prelimi-

nary pathological report stated that papillomatous tissue only was found and no malignant invasion. The case, specimen, and detailed report were shown.

Mr. DE SANTI said the microscope showed that the growth was non-malignant and papillomatous in its nature. It was not epitheliomatous although pearls were visible. On examining the larynx he could still see one or two white points, but the cords were quite mobile.

A CASE OF LARYNGEAL GROWTH FOR DIAGNOSIS.

By DR. STANLEY GREEN AND DR. LAMBERT LACK.

The patient, a woman, aged about fifty-six, had been hoarse for six years. For the last eighteen months her voice had been in the same condition as at present. She had been treated by a complete rest of the voice and with large doses of iodide of potassium without improvement. There was a smooth red growth springing from the posterior wall of the larynx below the vocal cords. The exhibitors were inclined to consider it a tubercular tumour.

Dr. STANLEY GREEN said there was no history suspicious of syphilis save that the patient had had six miscarriages. An X-ray examination of the chest demonstrated the existence of tubercular disease in both pulmonary apices, and the patient had given a positive reaction to the Calmette ophthalmic test, but the growth had been discovered before the disease in the lungs had been suspected. He asked the opinion of the Fellows upon the nature of the growth.

Dr. WATSON WILLIAMS asked whether the growth was hard or soft.

Dr. STANLEY GREEN, in reply, said it was hard.

Dr. WATSON WILLIAMS said in that case when one considered the long duration of the symptoms, six years—too long for a tuberculoma—the most likely diagnosis was that the growth was a chondroma.

Dr. DONEGAN thought from the presence of congestion of the rest of the larynx that the tumour might be a fibroma, or an inflamed polypoid growth due to the old chronic laryngitis.

Dr. DUNDAS GRANT expressed his concurrence with Dr. Watson Williams's views, and suggested that the case was an ideal one for examination, and possibly direct operation with the help of Killian's tube. The patient suffered considerable inconvenience both in speaking and breathing from the presence of the growth and even thyrotomy might be quite justifiable.

Mr. FITZGERALD POWELL was very doubtful as to its being a tuberculoma. The appearances were not those of tubercular disease of the larynx. It was really impossible to say what the nature of the tumour was. The duration of the growth proved that it was not malignant. He did not think that it could be removed by the Killian tube. The only feasible method of removal was by an external operation, such as tracheotomy or splitting the cricoid.

Dr. DAVIS thought that the growth was much larger than it looked.

Dr. DAN MCKENZIE asked whether it would be wise to carry out an operation for the removal of the tumour in the face of the fact that the

patient was suffering from tubercular disease of the lungs. There did not seem to be any urgent need for operation, as there was no severe dyspnea.

MR. CLAYTON FOX remembered a case very similar to this which he had seen some years ago at the Central London Throat and Ear Hospital, and which after removal proved to be a tuberculoma.

DR. STANLEY GREEN questioned the advisability of operation in view of the presence of tubercular disease in the lungs.

INFILTRATION OF THE NASAL CAVITIES IN A MAN AGED FIFTY. (PATIENT AND MICROSCOPIC SECTION.)

BY MR. C. A. PARKER.

The patient had influenza in February, 1907, after which he noticed a clear watery discharge from his nose and some nasal obstruction. The obstruction has gradually increased until it is now practically complete.

On examination both sides of the septum were found to be greatly but irregularly thickened, and the middle and inferior turbinals on both sides were much enlarged, and had a nodular appearance. In some parts the enlargement was firm and solid to the touch, whilst in other parts it was of polypoid consistency. There was also some thickening on the floor of the nose. By posterior rhinoscopy the turbinals were seen to be enlarged, and of firm and solid appearance. The posterior end of the septum showed no change. Both maxillary antra were quite bright on transillumination, and there was no sign of bulging of any accessory sinus. A portion of the infiltrated mucous membrane was removed from the left middle turbinal, and had been reported to be a spindle-celled sarcoma. Clinically, however, the case did not suggest sarcoma, and there was room for doubt as to whether the microscopic appearances definitely point to the infiltration being of this nature. The patient and section were shown with a view of eliciting opinions as to the diagnosis and suggestions as to treatment.

DR. PEGLER was of opinion that the microscopical appearances were those of syphilitic infiltration, not of a gummatous character. There were no vessels in the section shown, otherwise the presence or absence of endarteritis would have been a point of much value.

DR. WYATT WINGRAVE said the microscopical appearances were not those of spindle-celled sarcoma. There was a lymphocytic infiltration with endothelial cells, suggestive of a granuloma, either lupus or rhinoscleroma. The absence of hyaline bodies excluded rhinoscleroma.

MR. PARKER said the patient denied all history of syphilis.

CASE OF HEMATOMA WITH ABSCESS OF SEPTUM WITH A FISTULOUS
OPENING INTO THE MOUTH.

BY DR. DAN MCKENZIE.

A male, aged twenty-one, received a blow while boxing straight on the end of the nose seven weeks ago. Swelling of the nose, upper lip, and eyelids followed, and lasted about a week. The nasal respiration was obstructed from the outset by swelling of the septum. About five weeks before he came to hospital the patient observed that, when the swelling inside the nose was compressed, pus flowed into the mouth. On inspection both nostrils were seen to be occluded in front by a septal swelling, tender and fluctuating. On opening the mouth a fistulous opening, discharging pus, was seen in the gingivo-labial recess to the left of the frænum of the upper lip; through this opening a fine probe could be inserted for a distance of one inch and a quarter, passing into the abscess cavity in the nose. The abscess was opened by a free incision through its antero-inferior wall in the left nostril and lightly packed with gauze.

The PRESIDENT said fistulous openings of this kind were rare.

Dr. DAN MCKENZIE said he supposed that the pus under the muco-perichondrium of the septum had tracked down under the periosteum of the superior maxilla to open in the mouth. It did not burrow back under the vomer, presumably because the sub-perichondrial space of the cartilage was not continuous with the sub-periosteal space of the vomer.

CASE OF NASAL OBSTRUCTION.

BY MR. DE SANTI.

A youth who has complained of variable *nasal obstruction* for the last four years. Six to seven months ago this condition became aggravated and pain was noticed across the bridge of the nose; this pain had increased of late and the obstruction to nasal respiration had become more marked. On examination two weeks ago, when the patient was first seen, a bilateral red swelling was found on the septum nasi; tender to touch and soft to the probe. Swelling of the middle turbinals and cartilaginous ridges on lower part of septum also noticed. No history of injury; no signs of congenital syphilis. Incision into the swellings on two occasions negative as to pus. The condition remains *in statu quo*. Shown for diagnosis and treatment.

Dr. WATSON WILLIAMS thought that the swelling was syphilitic, and suggested treatment with iodide of potassium. The shape of the upper mesial incisor teeth suggested hereditary syphilis.

Dr. TILLEY looked upon the swelling as a deviated septum, the concave side of which had become filled up from chronic catarrh.

Mr. PEGLER agreed with Dr. Tilley. He remarked that it was impossible to see beyond the inferior turbinal without first of all applying some cocaine to make it contract.

Mr. DE SANTI said the swelling affected both sides of the septum symmetrically. There was extreme tenderness to pressure both inside and outside the nose. This had appeared within the last few weeks. The swelling was œdematous. It might be catarrhal, but he was not satisfied as to its nature. He had already tried potassium iodide without any result.

BOXY OUTGROWTHS FROM THE MAXILLA AND MANDIBLE IN A MAN AGED THIRTY.

By MR. W. H. KELSON.

First noticed eight years ago. Symmetrical outgrowths from nasal processes of superior maxillæ, and great bony enlargement of inferior turbinates pressing on either side of septum nasi. Outgrowth from mandible to left of middle line.

Mr. BETHAM ROBINSON thought this was a case of leontiasis ossea, a disease the cause of which was unknown. He had shown a boy at the Clinical Society some years ago, with a similar overhanging jaw, and with, also, enlargement of the clavicles. Treatment by potassium iodide and hydrarg. c̄ cret. was tried for a time without any effect. But after some years the treatment had been resumed, and the case showed signs of clearing up.

Dr. DAN MCKENZIE agreed with the last speaker in the diagnosis of leontiasis ossea. The beetling brows, massive bossy prominences on the mandible, and the cavernous mouth united to make up the typical picture. There was a skull in the Museum of the Royal College of Surgeons which exactly exemplified the obliteration of the nasal cavities present in this case—an obliteration produced by the osseous outgrowth in the lateral walls of the nose, characteristic of the disease known by this name.

Mr. CLAYTON FOX said the bony swelling on the left side of the chin was not symmetrical, which was a point against the diagnosis of leontiasis ossea.

Mr. WESTMACOTT said there was a decided boss on the right as well as on the left side of the mandible.

Dr. JOBSON HORNE said the condition was also met with in animals. He asked that a careful inquiry should be made into the mode of onset of the disease. Was it insidious, or sudden with acute nasal symptoms? Inquiries of this kind might elicit some information regarding the ætiology of the condition.

Mr. PEGLER did not think that even if it was a case of leontiasis ossea, it could be called "typical."

Mr. KELSON said that there was no history of syphilis. He had not yet tried potassium iodide. The case was not, in his opinion, typical of anything. The patient resembled the men with lateral bony tumours of the nose figured by Bland-Sutton. The antra were dull on transillumination. The onset had been exceedingly insidious and free from pain.

A NEW INSTRUMENT FOR PASSING RAPIDLY AND EASILY A SUTURE THROUGH THE EPIGLOTTIS.

BY MR. CYRIL HORSFORD.

This was intended to facilitate intra-laryngeal operations according to the method advocated at the meeting of this Section in December last.

Dr. DUNDAS GRANT stated that he had used it in a case of pendulous epiglottitis and had found it most efficacious.

Dr. DAVIS said Mr. Horsford had passed a thread through the epiglottis of his patient, and he was struck with the rapid and neat manner with which it had been done. He advised that the needle should be inserted through the tip of the epiglottis, otherwise when the thread was pulled the epiglottis buckled up.

Mr. SCANES SPICER was sure this would prove a most useful instrument. He suggested passing a thread through each side of the epiglottis. He also suggested that it might be employed in order to pull forward the soft palate, and even the tongue.

Mr. FITZGERALD POWELL uttered a warning lest owing to the very ease with which the method could be employed we should abuse it.

Mr. STUART LOW congratulated Mr. Horsford upon the success attendant upon his efforts.

Mr. HORSFORD, in reply, said the method was simple. With regard to its usefulness, he had been impressed with the facility with which the holding forward of the epiglottis had enabled him to view the interior of the larynx. It might also be used in all intra-laryngeal operations, especially in people like vocalists, in whom nodules required removal with the utmost delicacy.

A GROWTH ON THE LEFT VOCAL CORD.

BY DR. H. J. DAVIS.

This was in a man, aged twenty-six. He had been hoarse for three months. There was nasal discharge, laryngitis, and a growth on the left vocal cord at the junction of the posterior and middle thirds (? fibroma).

Dr. DUNDAS GRANT said he quite agreed with Dr. Davis that the little pedunculated growth was a fibroma. It could easily be removed, but the hoarseness was probably due as much to the chronic laryngitis as to the growth. For the laryngitis he considered the treatment of the nose to be important.

A CASE OF RIGHT-SIDED NASAL OBSTRUCTION FROM A CYST ON THE FLOOR OF THE INFERIOR MEATUS.

BY DR. DAVIS.

The patient was a woman, aged fifty, and the condition was of two years' duration. There was a fluctuating cyst on the floor of the inferior meatus extending under the middle turbinal.

MR. BETHAM ROBINSON thought the cyst was of dental origin, arising in connection with the right canine, which was carious.

DR. DAN MCKENZIE asked whether the tumour was not a simple sebaceous cyst of the floor of the vestibule.

MR. CLAYTON FOX was sure it was not a sebaceous cyst because of its extreme resiliency on being probed. He thought it was nevoid.

A MAN WHO HAD HAD TWO OPERATIONS ON THE FRONTAL SINUSES, ETC.

BY DR. H. TILLEY.

On the right side the complete Killian operation had been performed on February 12, 1908, and the sphenoidal sinus was opened. On the left side an incomplete Killian had been performed on March 4, 1908. At this operation a piece of gauze was passed through the septum to the right side, showing that there was a defect in the septum at this spot.

MR. STUART-LOW said the scars were rather prominent and detracted from the æsthetic result of the operation. He had shown cases at the Section with scars much less prominent than these. This good result he attributed to the use of his cage after operation. This was a wire covering with rubber edges firmly applied over the dressings. By its pressure it produced some passive congestion, simulating the Bier treatment. He had observed in this case some fœtid muco-pus in the inferior meatus at the back of the nose. This he attributed to the antrum having been operated in what he considered to be the obsolete method of stitching up the incision in the mouth at once.

DR. TILLEY said he had shown the case to illustrate the complete Killian compared with the incomplete. He had sutured the forehead wounds at once in accordance with Mr. Stuart-Low's views. The pus in the nose came from the granulations in the antrum, which were not yet covered, as the mucous lining was not yet regenerated.

A CASE OF EXTRINSIC EPITHELIOMA OF THE LARYNX.

BY DR. DUNDAS GRANT.

A male patient, aged forty-nine, first seen April 1, 1908, complaining of sore throat and swollen glands of eight weeks' duration. There were pain on swallowing, and loss of voice at times. There

was fixation of the left half of the larynx; cords normal; imperfect abduction; thickening and irregularity in left hyoid fossa. He had increased salivation.

The question of total extirpation of the larynx along with enucleation of the infected gland arose.

Several members expressed the opinion that it was inoperable.

Abstracts.

MOUTH.

Blegvad, N. (Copenhagen).—*Black Tongue (Lingua villosa nigra)*.
"Arch. für Laryngol." vol. xx, Part II.

The writer gives a detailed account of ten cases of this condition which he examined both microscopically and bacteriologically. He also reviews the literature at some length. Of the many names which have been applied to the affection he prefers that of "*lingua villosa nigra*," because it indicates the two cardinal features of the disease. In all cases the filiform papillæ are of dark or black colour, and are markedly hypertrophic. The coloration and hypertrophy are, as a rule, limited to a symmetrical patch in front of the circumvallate papillæ, the tip and edges of the tongue remaining unaffected. Symptoms may be entirely absent, but often there is some form of dys- or paræsthesia of the tongue, mouth, or throat, and not infrequently the sense of taste is diminished. The affection has been known to appear in a single night, but as a rule it begins as a small patch, which spreads for a longer or shorter time and then gradually diminishes from the periphery inwards. In many cases the duration of the condition corresponds exactly with that of some other disease from which the patient is suffering. Men are affected more than twice as often as women. Of 84 cases collected by the author, including 10 of his own, 30 were in patients over 50 years of age, and 12 in children under 14 years; 36 suffered from some trouble of the digestive tract (including mouth and throat); 20 were very debilitated individuals, such as are frequently found to have a furred tongue; 12 were the subjects of syphilis; and 13 were said to be in normal health.

Authorities may be divided into two groups, according as they consider the affection to be of parasitic or of non-parasitic origin. Of those who belong to the first group some say that it is caused by a black parasite which grows on the surface of the tongue; others that the microbes first of all produce the hypertrophy and after that the dark coloration. Others, again, assert that the microbes cause the hypertrophy, but not the dark colour, while some say that they are responsible for the colour, but not for the hypertrophy. By those who deny the parasitic origin, a large number of different suggestions have been made. The cause has been said to be vaso-motor disturbance, trophic disturbance, hyperkeratosis, etc. The author finds that the parasitic view is not supported by the microscopical and bacteriological evidence, nor is the disease inoculable or infectious. Of the other suggestions that of

hyperkeratosis alone requires consideration. A comparison, however, of the papillae from a case of black tongue with those from a normal tongue, shows that although the papillae in the two cases differ in size and colour, the degree of cornification is the same in both.

The author's view is that the papillae filiformes become lengthened from some cause, most often a slight glossitis produced by disease of the nose, throat, or digestive tract, by smoking, the use of drugs which like mercury are excreted by the mouth, stomatitis, etc. The papillae thus lengthened become stained in a purely chemical way by ingesta (food, wine, tobacco), or by drugs (iron, mercury). This view is consistent with the microscopical appearances, and is supported by the great variety of the colours which are observed, for example, in the same patient at different times, black, blue, and brown. Hydrogen peroxide (10 per cent.) painted on once or twice a day is the best application for removing the colour, while stomatitis, if present, will require treatment. A complete bibliography is given.

Thomas Guthrie.

PHARYNX.

Wylie, Andrew (London).—*Foul Breath: its Causes, Pathology, and Treatment.* "West London Med. Journ.," vol. xiii, No. 2, April, 1908.

In an interesting paper the author tabulates various causes which conduce to breath fœtor. He classifies the types of fœtor as: (1) the putrefactive type; (2) the sulphuretted hydrogen type; (3) the garlic type; (4) the sweetish type; and (5) the toxic or hepatic type. He further classifies fœtor breath according to the different regions responsible for its source, summarising them thus: (1) Diseases of the nose and its accessory cavities, causing nasal obstruction and mouth-breathing; (2) imperfect deglutition; (3) oral and lingual affections; (4) diseases of the teeth and gums; (5) diseases of the tonsils; (6) chronic suppuration of the middle ear; (7) affections of the naso-pharynx; (8) diseases of the lung; (9) foreign bodies in the mouth, nose, pharynx, or larynx; (10) constitutional causes.

Some diseases of the nose cause a specially pronounced odour, for example, rhinitis sicca, which arises when the secretion is impaired or diminished in quantity and quality. A similar condition is found in atrophic rhinitis, where actual structural degeneration of the mucous membrane has taken place. Thus, in caseous rhinitis, where the pus and *débris* are charged with various forms of moulds, yeasts, and putrefactive bacteria, such as *Aspergilli torulæ* and the *Bacillus butyricus*, and in chronic diseases of the accessory cavities where pus is lodged in the maxillary antrum, or the ethmoidal, frontal, or sphenoidal sinuses, also in tertiary syphilis with necrosis of the ethmoid or vomer. In septal perforations, whether from operations, from tuberculosis, or syphilis, there is also fœtor, and the same is found when polypi and sinusitis co-exist. Generally speaking, fœtor may be present in any malformation of the nose which interferes with free discharge and proper ventilation.

Speaking of the constitutional causes, he mentions: (1) Gastro-intestinal derangements and dyspepsia, especially those which are associated with dilatation of the stomach. In patients troubled with severe chronic constipation there is a peculiar sickly, almost fœcal odour from the breath. Spirit drinkers have quite a different odour from beer

drinkers; the former is of a vinegar type, while the latter have the characteristic smell of stale malt liquor. The breath of cigar and pipe smokers has a different smell according to the favourite form of using tobacco. (2) Different varieties of glycosuria cause a sweetish odour to the breath. (3) Menstruation always causes some change in the breath; in some individuals it is so pronounced that they can hardly mix with society during that period. (4) During lactation also in some patients there is a marked odour from the breath. (5) Drugs have a great influence on the breath, and it is one of the signs to watch for in their administration. Lead and mercury produce a well-known effect on the gums, and in extreme cases much fœtor. All preparations of sulphur cause a characteristic sulphuretted hydrogen smell of the breath. Copaiba and valerian have a cat's-meat smell, iodoform a rancid smell, and belladonna and opium diminish secretion and cause a dryness of the mucous membrane to which bacterial activity may be superadded. (6) Occupations have also a great deal to answer for as regards foul breath. Milkmen, or those continually working in milk, have a peculiar odour owing to constant contact with the *B. butyricus*. The reason of this is probably the direct transference of the bacillus by the fingers to the nose with consequent rhinitis. The same theory applies to workers among phosphorus, lead, or brass, have a peculiar metallic odour from their breath, which is associated with rhinitis and "spongy" gums. (7) Many nervous diseases cause an odour from the breath, such as is found in paralysis and apoplexy. The foul breath which frequently follows a hemiplegic attack is doubtless quite familiar. Mental dulness and physical disability prevents proper cleansing of the lips, teeth, and tongue; thus sordes accumulate and fœtor is produced.

Dealing with the treatment of these conditions he points out that successful treatment of fœtid breath depends first upon a clear recognition of the cause; secondly, on the persistent and thorough employment of the methods adopted; and thirdly, on the intelligent co-operation of the patient. Remedies to overcome fœtor must not be taken in hand in a half-hearted manner; they must be persevered with most thoroughly, and the patient should be instructed in every detail of the technique, whether this includes a douche, spray, or insufflation. A mere temporising by the use of "deodorisers" only results in disappointment if the *fons et origo mali* remains untouched. The chief aim in overcoming foul breath is to treat and remove the immediate cause, which is usually bacterial in origin, whether primary or secondary. With the object of clearing away fœtid accumulations in the nose and naso-pharynx, "solvent" douches must be employed. It is useless merely to employ antiseptics which do not possess the power of dissolving mucin, albumen, and the constituents of crusts. The best ordinary solvent is sodium sulphate (1 per cent. solution) or sodium bichlorate or carbonate (in 0.5 per cent. solution). The nose should be thoroughly douched with this until the breath-way is free from crusts and caseous matter. Antiseptics can be employed afterwards direct to the membrane by means of sprays. In mild cases, when the fœtor is not severe, and when the mucous membrane is still sensitive, the olfactory function not being destroyed, an atomiser of liquid paraffin containing menthol, oil of cinnamon, or eucalyptus is preferable, but, if the fœtor be very intense, Dobell's alkaline solution of phenol may be sparingly used.

Healthy secretion is restored by gentle stimulation. This can be done in mild cases by using a snuff composed of boracic acid with otto

of roses, but, when the disease is very atrophic and secretion scanty, 5 per cent. of lysoform should be added as a powerful stimulant and antiseptic. Sea water, boiled and decanted, forms an excellent douche, especially when combined with a visit to the sea air. The nasal and pharyngeal mucous membranes, except in cases of atrophic rhinitis, are very sensitive, and will not tolerate antiseptic solutions of anything like the strength and intensity which the mouth does. Densely hard crusts are painlessly removed by inhalation of steam, camphor being added to the hot water as a stimulant. To facilitate oral hygiene solutions of lysoform (1 per cent.), sanitas, peroxide of hydrogen, etc., are most beneficial; permanganate of zinc (1 in 500) or zinc chloride ($\frac{1}{2}$ per cent.) is recommended in cases of "spongy gums." *Langdon-Brown.*

Crockett, E. A. (Boston).—*Two Cases of Hemorrhage following the Removal of the Tonsils.* "Boston Med. and Surg. Journ.," November 14, 1907.

The author has used a tonsil snare for eight years for the removal of tonsils, having previously employed a tonsillotome, knife or scissors. The two cases of hæmorrhage described followed the use of a snare wire two sizes larger than No. 5. In both cases the hæmorrhage was very severe, and would have been fatal had not help been speedily obtained.

Macleod Yearsley.

Langworthy, H. G. (Dubuque, Iowa).—*Adenoids and Tonsils: From the Standpoint of the General Practitioner, with Special Reference to an Examination of the Throat in Chronic Systemic Infections, and a Consideration of the Question of Status Lymphaticus in these Cases.* "Boston Med. and Surg. Journ.," January 30, 1908.

The purpose of this paper is to discuss recent deductions, chiefly experimental, dealing with tonsils and adenoids in their connection with certain general infections. The relation of the tonsils to rheumatism is discussed at length, and the important question of tonsils and adenoids and tuberculosis is also dealt with. The author quotes the conclusions of Brown, of San Francisco, in proof of the tonsils being portals for septic disease and tubercle. Langworthy considers that adenoids should always be removed where there is any reason to look upon them as responsible for symptoms. In discussing "status lymphaticus" he asks two important questions: (1) Whether a diagnosis thereof can be made during life? (2) Whether cases of greatly enlarged adenoids and tonsils are more likely to fall in this class than individuals who are not so affected? His reply to the first is that a positive diagnosis is extremely difficult, if not impossible. As to the second point, it is only when tonsils and adenoids are associated with absence of pubic hair in the adult, frequent attacks of syncope, dyspnea, and laryngismus stridulus, etc., that the possibility of a *constitutio lymphatica* should be considered. Langworthy finally protests against the unsurgical practice of leaving large pieces of tonsil behind.

Macleod Yearsley.

Handley, Sampson.—*A Case of Complete Resection of the Pharynx with Laryngectomy for Squamous Carcinoma of the Posterior Pharyngeal Wall.* "West London Med. Journ.," April, 1908.

The author describes the case of a woman, aged forty-four, with a growth completely obstructing the pharynx at the level of the cricoid cartilage. The patient was emaciated, suffering from attacks of dyspnea.

and desired relief. A preliminary gastrostomy was performed, and ten days later a low tracheotomy: then the pharynx was exposed and opened below the hyoid bone and the growth with the larynx, the whole of the lower half of the pharynx, and the left lobe of the thyroid body were removed. The œsophagus, trachea, and the pharynx at the level of the hyoid bone were closed with sutures, and the skin flap replaced. The patient recovered rapidly, and seven weeks after the operation she was comfortable, with weight increased and colour improved. A funnel-shaped india-rubber tube lying behind the tongue passing out through the pharyngeal fistula and so downwards to the stomach, allows her to swallow her saliva but not to feed through it. The patient can whisper, although no air from the lungs enters the mouth. The writer states that similar cases have been recorded by Gluck, of Berlin, but none in this country.

Andrew Wyllie.

Sehlbach (Zella St. Bl.).—*A Typical Case of Sudden Cessation of Menses with Angina.* "Münch. med. Woch.," March 31, 1908.

The patient, who had a dread of gestation, was greatly alarmed, but the author assured her that the angina was a sufficient cause. This opinion was confirmed by the normal return of menstruation the following month.

Dundas Grant.

Tormene, Enrico (Mantua).—*On the Behaviour of the Three Resistances of the Red Blood-Corpuscles in Adenoid Subjects.* "Archiv Ital. di Otologia, etc.," November, 1907, p. 501.

This is a preliminary note by way of contribution to the hæmatology and pathogenesis of adenoid vegetations. As his observations were made on only six cases the author does not attempt to draw very definite conclusions. He divides the red blood-corpuscles into three groups according to their resistance: maximum, medium, and minimal. He finds that in all his advanced cases there was increase of the maximum resistance, and that this continued for not less than four weeks after the removal of the growths, when it generally sank to normal. The other resistances were too variously affected for any conclusion to be drawn. The author suggests that, as in certain morbid states (*e.g.* icterus), a substance possessing a catatonic action is found in the blood, there may be in the subjects of adenoid disease a substance with hæmo-anatonic action which will affect certain groups of red corpuscles in an opposite sense to the action of the catatonic agents. In a future work the author hopes to give a definite answer to the interesting questions: Whence do the serums of these adenoids derive their increased potentiality? And whence comes the anatonic agent that acts on the corpuscles of maximum resistance?

James Donelan.

NECK AND THYROID.

Jackson, J. M., and Mead, L. G.—*Some Clinical Observations on the Diagnosis and Treatment of Exophthalmic Goitre.* "Boston Med. and Surg. Journ.," March 12, 1908.

A review of 85 cases (80 women and 5 men), treated with neutral hydrobromide of quinine (formula, $C_{20}H_{24}N_3O_2 \cdot HBr + H_2O$) in 5 grain capsules three times a day. This drug may have to be given continuously for two years. Thyroidectin was used in 12 cases. The authors do not

advocate sending early cases to the surgeon, as they believe 70 to 80 per cent. are cured by medical treatment.

MacLeod Yearsley.

Moty, Dr.—*Cervico-oesophageal Fistula.* "Gazette des Hopitaux," November, 1907.

In January, 1907, a girl, aged twenty, noticed a swelling at the lower part of her neck. It persisted, and when seen in March a tumefaction the size of a walnut was found partly covered by the sternal head of the right sterno-mastoid; its position was not changed during deglutition, although this act was attended with some discomfort. A diagnosis of adenitis was made. Iodine was prescribed internally and externally. No improvement ensued, and on May 3 the swelling was opened. A flow of pus followed, giving great relief and rendering deglutition easier. Ten days later the discharge had ceased, but on May 17 the inflammation and pain reappeared. The temperature oscillated between 38° C. and 40° C. A deep phlegmon of the neck had formed; this was incised, and on passing the finger into the opening made an abscess cavity was discovered occupying the whole of the right lateral part of the neck down to the upper border of the sternum. All symptoms improved under drainage and the prognosis seemed excellent, but seven days later fluid imbibed escaped from the wound; eight days subsequently solids swallowed passed by the same route. Purulent undermining of the cellular planes continued, rendering further incisions necessary. The patient's general condition rapidly became worse. There were extreme pallor, sweating and accelerated respiration; pulse 140. The apices of the lungs were consolidated, probably tuberculous, though examination of the sputum for tubercle bacilli was negative. Death occurred two days later. As to the pathology of the case the author considers that the lesion was tuberculous, originating as an adenitis, the inflammatory process extended to the oesophagus, finally perforating its wall. The prognosis in such cases is exceedingly grave, and early intervention gives the only chance.

H. Clayton Fox.

Guisez, M.—*The Value of Oesophagoscopy from a Diagnostic and Therapeutic Point of View.* "La Presse Médicale," February 12, 1908.

Contrary to the usually accepted view that the oesophagus is a collapsed tube, the observations of the author with the oesophagoscope on the living subject go to show that it is, for the greater part of its extent, an elongated fusiform cavity. Only for the first 4 cm. of its proximal portion and its terminal 2 cm. are its walls in apposition. This disposition of the tube is ascribed to adhesions binding its wall to adjacent structures and to the aspirating power of the thorax. After passing the oesophagoscope for 7 or 8 cm. into the gullet the fusiform portion is reached, and its wall can then be explored without contact with the instrument. Malignant growths or the bulging of an aneurysm can thus be viewed at a distance, avoiding all chances of perforation as might occur with the ordinary bougie. The appearance of the upper and lower extremities of the canal presented by this method of examination is fully described; both the author and Killian consider them to be sphincters, closed except during deglutition, etc. As regards diagnosis, the writer is of the opinion that oesophagoscopy is the only method affording precise evidence concerning lesions of the oesophageal wall or the position of a foreign body. Contrasting the superiority of this method with others at our disposal, such as the passing of bougies and

the use of bismuth emulsions with the fluorescent screen, the interesting point is noted that, from the fact that carcinomata are invariably associated with spasmodic strictures usually situated some 4 or 5 cm. above them, both the bougie and bismuth are in such circumstances arrested on the proximal side of the true lesion. With the cesophagoscope the spasm is easily overcome by the application of cocaine, after which the true nature of the parts beyond are revealed. The value of the method in the diagnosis of foreign bodies is discussed. Subjective sensations as an aid to location are often misleading, and the X rays frequently prove useless either owing to the fact that many bodies do not arrest them, or difficulty may be experienced in truly interpreting the projection of the shadow on the screen.

H. Clayton Fox.

NOSE.

Dupuy, Homer (New Orleans).—*A Preliminary Report on the Pathologic (sic) Relation between the Frontal Sinus and Affections of the Eye.* "New Orleans Med. and Surg. Journ.," December, 1907.

Based on clinical study of 50 selected cases. The author's conclusion is that ocular symptoms, other than orbital abscess, can be due to either acute or chronic suppurations of the sinus. He groups the ocular affections thus: Changes in the orbital cavity (orbital abscess), affections of the lids (oedema), conjunctival congestion (invariable in acute, generally absent in chronic, cases), asthenopia (more than half the cases), affection of the uveal tract (one case of irido-cyclitis), ptosis (one case), disturbances in vision.

Macleod Yearsley.

Albrecht, W. (Berlin).—*The Significance of Radiography in the Diagnosis of Accessory Sinus Disease.* "Arch. für Laryngol.," vol. xx, Part II.

In a paper by Goldmann and Killian, based on the examination of thirty cases, it was shown that on radiographs of the skull taken in the sagittal direction, not only were the accessory cavities of the nose clearly defined, but a diseased cavity was darkened as compared with a healthy one of the opposite side. The author has investigated the matter not only on patients with sinus disease but also on the cadaver. His results agree in all essentials with those of Goldmann and Killian, and he believes, as they do, that while radiography is in many cases certainly of no assistance, yet, in the great majority, it leads to conclusions of diagnostic importance.

In empyema of the maxillary antrum the skiagram almost always shows a distinct darkening of the cavity on the affected side as compared with the other. The method is likely, however, to be of comparatively little service in cases of this sort, owing to the greater ease and convenience of transillumination and exploratory puncture. In growths of the upper jaw radiography is of considerable value in showing the degree to which the growth has invaded the neighbouring parts.

In cases of frontal sinus empyema in which the sinuses are large and the disease is unilateral, the skiagram shows unmistakable darkening of the affected side. It is of very little diagnostic value in cases of early frontal sinusitis with catarrh and moderate swelling of the mucosa, and also in cases with small sinuses and when the shadow is bilateral.

In ethmoid disease the method is of very great value. In no instance,

either in the living or on the cadaver, was the author deceived as to disease of the anterior ethmoid cells. Not only is the presence of disease appreciable, but also its situation, whether in the superior, middle, or inferior portions of the labyrinth. In disease of the posterior ethmoid cells the method is of no value, and the same is true as a rule in the case of the sphenoidal sinus.

As a result of repeated trials on patients and on the cadaver the writer came to the conclusion that the darkening on the diseased as compared with the healthy side is due both to the pus and to the changes in the mucous membrane. In most instances the pus is the main factor, while in very chronic cases with numerous granulations and much infiltration of the mucosa the reverse may be the case. *Thomas Guthrie.*

Uffenorde, W. (Göttingen).—*On Chondromata of the Nasal Cavities, with an Account of a Case of Enchondroma of the Ethmoid, and a General Reference to the Methods of Operation for Accessory Sinus Disease.*

Chondromata are rare tumours in the nose. They vary greatly in their rapidity of growth, and appear to be especially liable to malignant degeneration. It is, indeed, scarcely possible to draw a sharp boundary between the chondromata and the chondro-sarcomata. The intra-nasal chondromata make their appearance before the age of twenty-five, and affect both sexes with equal frequency. They grow most often from the ethmoid, but have been found arising from the inferior lateral wall of the nose, from the frontal process of the superior maxilla, within the maxillary antrum, and from the septum. As regards the symptoms, four periods are recognisable: (1) The latent period during which symptoms may be absent, or there may be neuralgic pains; (2) the period of respiratory troubles, of which the chief is nasal obstruction; (3) the period of deformities, during which more or less protrusion of the eye is frequent and facial distortion often marked; (4) the period of cachexia, in which pain, sleeplessness, and anorexia are prominent, and pulmonary complications not infrequently precede death.

The writer reports a case characterised by the development during a period of three months of protrusion of the eye, diplopia, nasal obstruction, and one-sided headache. Posterior rhinoscopy showed a prominence of the posterior ethmoidal region, and infraction of the middle turbinate with Killian's long speculum disclosed the tumour growing from the ethmoid. Removal of a small portion established the diagnosis.

For treatment of the condition, apart from the very rare chondromata of the septum, extra-nasal methods of operation are alone admissible. "Para-nasal rhinotomy," usually known as Moure's operation, but which was first introduced by Michaux and Legouest in 1853, is often useful. The author employs a modification of this. His skin incision begins in the centre of the eyebrow, passes inwards, and then curves downwards over the suture between the nasal bone and the frontal process of the superior maxilla, and terminates in the naso-labial furrow on a level with the lower border of the ala of the nose. This permits easy access to the frontal and ethmoid sinuses. The nasal bone may be turned inwards, or removed without fear of a bad cosmetic result. The front wall of the antrum and the floor of the orbit may also be in part removed. A good view is obtained of the whole ethmoid, of the sphenoidal sinus, and of the naso-pharynx. The method is an excellent one for the removal of ethmoid tumours, even when they have invaded all surrounding parts.

It is well adapted also for cases of ethmoid suppuration which cannot be cured by intra-nasal measures. The cosmetic result is almost perfect. For cases in which mainly the lower lateral wall of the nose is involved Denker's method is to be recommended.

Thomas Guthrie.

Mink, P. J. (Deventer, Holland).—*The Causation of Septal Deviations*. "Arch. für Laryngol.," vol. xx, Part II.

While it is well known that the so-called dislocation of the septal cartilage is frequently due to trauma, most authorities agree that the regular C- or S-shaped bend so often seen must be ascribed rather to continuous pressure than to the application of sudden force. It is natural to assume that this pressure is a vertical one, and due either to the cartilage being relatively too large or its three-sided bony frame too small. If the latter be the case it should be possible to establish a relationship between septal deviation and rickets or some other condition which might account for the arrest of growth. Such a relationship has, however, never been established. The view that the cartilage is relatively too large seems unlikely to be correct, when it is remembered that this cartilage is merely that portion of the originally continuous cartilaginous septum which has not undergone ossification. On the whole, the author regards it as extremely unlikely that vertical forces play an important part in the causation of septal deviations, and he believes that lateral forces are the main factor. Direct pressure by enlarged turbinates he considers of small moment, but attributes an important influence to inequalities of the air-pressure on the two sides of the septum. As a result of his manometric investigations he finds, for example, that closure of one internal nasal orifice leads to a relative diminution of the expiratory air-pressure on the opposite side. Asymmetry of the two nasal cavities may therefore give rise to slight inequality of pressure on the two sides of the septum, and if this, though slight, be long continued, bending may result. Inequality of pressure may also give rise to nutritional changes, which in their turn may show themselves as thickenings and spurs. The influence, however, of variations in atmospheric pressure on the growth of tissue still awaits investigation.

Thomas Guthrie.

Citelli and Bellotti.—*Primary Tumours of the Nasal Sinuses*. "Proceedings of the Eleventh Congress of the Italian Society of Laryngology, etc."

The first of the writers deals with the pathological anatomy and aetiology, and gives a sketch of the clinical picture and the treatment. The second discusses mainly the case incidence and bibliography. Citelli comes to the following conclusions: (1) The diagnosis of primary tumours of the sinuses is far from easy; on the contrary, there is a period (which varies in duration according to the nature of the tumour and the sinus affected) during which they are entirely latent and the diagnosis is almost impossible, being often made unexpectedly at the *post-mortem* or the operation. (2) On account of the difficulty in the diagnosis of such lesions there is all the greater usefulness in early intervention: it is necessary to study the symptomatology carefully and to make the most of the signs which may arouse even the slightest suspicion of this disease, endeavouring to confirm them by all the means of diagnosis at our disposal, particularly by exploratory operations. (3) Any intervention, when indicated, ought to be surgical and as radical as possible. (4) The chapter dealing with pathology and clinical

history, of which so little is known up to the present, would make great progress if authors were more precise in their description of their cases, distinguishing as far as possible the primary from the secondary tumours, and one anatomical form from the other. This is an indispensable foundation for our knowledge and for decision as to treatment, on the accuracy of which the result greatly depends. Dr. Bellotti's report is full of interesting clinical history and of practical data illustrating this difficult question.

V. Grazzi.

Broeckeaert, Jules (Ghent).—*Contribution to the Surgical Treatment of Hypertrophy of the Nose.* "La Presse Oto-laryngol. Belge," March, 1908.

The problem of treating this disfiguring condition is discussed. The author treated a case in which the deformity was of very large dimensions by removing a wedge-shaped mass of tissue from the end of the nose and bringing the edges of the flaps together by sutures. Hemorrhage was free, but easily controlled. The result was very good.

Chichele Nourse.

Gallemaerts, E., and Delsaux, V. (Brussels).—*Double Frontal Sinusitis Complicated by Suppuration in the Left Middle Ear with Obliterating Thrombosis of the Corresponding Lateral Sinus.* "La Presse Oto-laryngol. Belge," January, 1908.

Chronic frontal sinusitis in a woman, aged sixty-one, was followed by perforation of the anterior wall of the left sinus, the formation of an orbital abscess, and displacement of the eyeball. The case was operated on by the method of Kulmt. About a week afterwards acute purulent otitis media on the left side supervened, with mastoid pain, necessitating operation. The antrum contained no pus or granulations. As the patient's condition did not improve, and there was marked leucocytosis, a further operation was performed two days later. Two cavities containing granulations were found in the bone, and the lateral sinus, which contained a clot, was opened and curetted. The patient recovered.

Chichele Nourse.

LARYNX.

Strazza, Prof. G. (Genoa).—*On a Case of Grave Laryngeal Stenosis due to Amyloid Degeneration of the Subglottic Region.* "Archiv Ital. di Otologia, etc.," November, 1907, p. 458.

The author describes the case of a man, aged fifty-two, who had good health until 1903, when he had a severe influenza followed by chronic bronchitis, with frequently recurring attacks of what was considered to be asthma. He was admitted to hospital for dyspnea. There were no thoracic physical signs beyond the noisy respiration. The laryngoscope showed very slight evidence of catarrh and impairment of muscular action. Below the vocal cords, however, there was an intense infiltration of the trachea, the lumen of which was reduced to a narrow ellipse. The patient died in the night unexpectedly, and before his attendants were aware of it. At the autopsy the swelling was found to occupy the whole extent of the cricoid down to the second tracheal ring. Posteriorly it was 6 mm. thick and 4 mm. anteriorly. A similar patch of thickening occurred at the level of the fourth, fifth, and sixth tracheal rings. The

microscopic examination and the results of the chemical tests enabled the author to conclude that the case was one of gradual diffuse hyperplastic perichondritis of the cricoid region, with secondary amyloid degeneration and a similar degeneration of other tracheal rings. The author discusses the pathogenesis at considerable length, with references to the previous literature, and inclines to the view of so many authors that the amyloid change is the consequence of degenerative changes in the blood-vessels. The paper is well illustrated with photographs and micro-photographs.

James Douclet

Rieser, W.—*The Laryngeal Complications of Typhoid Fever, with Report of two Cases.* "Amer. Journ. Med. Sci." February, 1908.

The lesions met with in the larynx are submucous laryngitis, ulcerative laryngitis, and perichondritis. The site of lesion, as found *post-mortem*, does not agree with what has been observed clinically. In 4000 autopsies the posterior wall at the insertion of the vocal cords and involving the cricoid cartilage was the seat of the lesion in 60 per cent., the arytenoid cartilages and interspace the next, the ary-epiglottic folds, epiglottis, and thyroid cartilage being least affected in the order named; whereas Chevalier Jackson found in 360 routine laryngoscopic examinations ulceration to be present in 68 cases, involving the epiglottis 42 times, ary-epiglottic folds 22, interarytenoid space 18, and arytenoid cartilage 10. Inflammation may occur any time between the first and the tenth weeks. Over 70 per cent. of reported cases occurred after the third week. The onset is insidious. Extreme dyspnoea and spasm may be the first intimation, and the first attack may end fatally. In the greater number of cases these complications occur when the patient is convalescent and all danger supposed to be past. The symptoms begin mildly and in the following order of frequency: hoarseness, aphonia, stridor, dyspnoea, metallic cough, dysphagia. Any of these symptoms may be overlooked or misconstrued until, with tragic suddenness, an acute oedema of the glottis supervenes, or an asthenic apnoea, without the slightest warning of its approach, may terminate life. Therefore the slightest hoarseness, cough, pain in swallowing or breathing should immediately arouse suspicion and lead to a laryngoscopic examination being made.

The prognosis, if we judge from 243 collected cases, is very bad, as 65 per cent. in all died; of those operated on 58 per cent., and of the unoperated, 76 per cent.

In the first of the author's two cases, which are recorded in detail, the patient developed in the third week a parotitis with oedema of the pharynx and larynx. Tracheotomy was performed with relief to breathing, but the patient died the next day without recovering consciousness. Cultures for Klebs-Loeffler bacillus were negative, and at the *post-mortem* "the cartilaginous box of the larynx and the trachea were found absolutely normal."

The second case was admitted to hospital convalescent in the fourth week, after a mild attack without complications. Eight days later, though the temperature remained normal, he developed hoarseness with slight cough, and at times inspiratory stridor. Laryngoscopic examination showed congestion of the cords, but no impaired movement or any ulceration. Under treatment symptoms improved; only aphonia remained. Twelve days after admission the patient developed respiratory obstruction, so sudden and complete that the house-surgeon had to perform

laryngotomy with an ordinary pen-knife. Cultures for Klebs-Loeffler bacillus were negative. A month later it was still impossible to remove the tracheotomy tube.
Middlemass Hunt.

Mosher, Harris Peyton (Boston).—*The Direct Examination of the Larynx and of the Upper End of the Esophagus by the Lateral Route.* "Boston Med. and Surg. Journ.," February 6, 1908.

The author discusses the difficulties in direct examination of the larynx, and describes a special speculum designed by the author for use in the lateral position, a posture which does away with the necessity for holding the patient's head, and which does not put the larynx on the stretch, and so makes it more easily viewed. The speculum is a combination of tongue depressor and mouth gag, and is used on the left side. Its method of use is carefully described.
Macleod Yearstey.

Rogers, J. (New York).—*The Treatment of Chronic Stenosis of the Larynx and Trachea.* "Amer. Journ. Med. Sci.," vol. cxxxv, No. IV.

The author's experience of stenosis of the larynx and trachea extends to 23 cases. Among these there were 3 deaths and 2 failures to cure, while the remaining 18 are all now "practically well," and all but one have good or perfect voices.

It has been shown by means of statistics that about 1 per cent. of patients intubated for laryngeal diphtheria will subsequently be unable for an indefinite period to breathe without the tube or a tracheotomy opening. The most common cause of this condition of "retained tube" is a "chronic hypertrophic subglottic laryngitis"—a chronic exudative and productive inflammation of the intra-laryngeal soft parts. This has been found after tracheotomy as well as after intubation, and cannot, therefore, be ascribed to faulty technique in "tubage." Another cause of "retained tube" is "abductor spasm," which is found in patients who have worn an intubation tube for some time. It is probably due to disuse atrophy of the abductors. Under general anaesthesia with the pharyngeal reflexors abolished respiration is normal. "Retained tube" may also be due to cicatrices and rarely to exuberant granulations.

For the treatment both of hypertrophic laryngitis and cicatricial stenosis the author employs constant and long-continued dilatation, the passage being stretched to its largest normal calibre. With the patient under deep, general anaesthesia a number of ordinary O'Dwyer's tubes are passed through the larynx until one is found in which "the retaining swell distends the constriction to the limit the operator believes it will bear without sloughing." A "special tube" is then made of the length of the normal tube suited to the age of the patient, but with a retaining swell of the same diameter as that of the trial tube. If auto-extubation occurs, a tracheotomy is usually required, after which the "special tube" is fixed in position by a plug or clamp passed through the tracheal fistula.

After removal of these large dilating tubes, although the hypertrophy or cicatrices formerly present may have been overcome, obstruction due to "adductor spasm" may still remain. In such a case the obstruction disappears entirely under general anaesthesia. It is best treated by inserting for several days or weeks a tube with head, swell, and length, the same as those of the dilating tube but with the neck as small as possible so that the abductor muscles may be to some extent exercised.

In the case of a fibrous stricture the "special tube" should have its

widest part so placed as to correspond to the site of the stricture. No stricture is to be considered hopeless if any trace of mucous membrane remains.

In cases of cicatricial stenosis the dilating tube must be worn for from two to six years, but there is a reasonable certainty of ultimate recovery with a good voice.

Thomas Guthrie.

Teets, C. E. (New York), and **Shearer, T. L.** (Baltimore).—*Malignant Tumours of the Larynx: or, Observations on the Management and Treatment of Cancer of the Larynx.* "The Homœopathic Eye, Ear, and Throat Journal," February, 1908.

Dr. Teets, while admitting that nothing has been found to cure cancer, states that the application of chromic and lactic acid do not irritate when properly applied: in using chromic acid only a small crystal should be fused on the probe and only a small area of the growth treated. He claims that in this way the patient's life is prolonged: there is less suffering, and a benign tumour, which might from instrumentation become malignant, might be cured.

Shearer, in discussion, advocated the removal of a portion of a growth for examination only under three conditions: (1) When the operator had sufficient skill to do so without injury to the neighbouring parts; (2) when a fragment from the deepest part of the tumour could be obtained, as otherwise the microscopic findings would probably be negative and misleading; (3) when the case had been fully placed before the patient and permission obtained for a thorough operation if the surgeon considered it necessary. He was of the opinion that any irritation, whether chemical, caustic, or instrumental, was apt to hasten the growth of a tumour already cancerous, but he doubted very much whether the use of endolaryngeal instruments could cause the transformation of a benign to a malignant growth. He deprecated attempts at endo-laryngeal removal of laryngeal cancers, the only satisfactory way of doing it being by thyroto-my, quoting Semon's results in support of his views. He advised total laryngectomy if the disease, after the larynx was opened, was found more extensive or advanced than supposed. He quoted von Bruns' statistics of total laryngectomies performed since 1890. He narrated one remarkable case of laryngeal cancer being apparently cured by hypodermic injections of trypsin, namely one recorded by Dr. Homer Dupuy, of New Orleans.

Dundas Grant.

Hoffmann, R. (Munich).—*Lasting Anæsthesia in Tuberculosis of the Larynx.* "Münch. med. Woch.," April 7, 1908.

On account of the transitory nature of the anæsthesia induced by the insufflation of cocaine, anæsthesin or orthoform at the hands of the physician, Hoffmann has devised a tube for self-inhalation of powders, which are placed in a receptacle like the bowl of a pipe. He has apparently not known Leduc's tube.—D.G. A lasting diminution of odynphagia was obtained by alcohol injections directed towards the superior laryngeal nerve. By means of a fine syringe he injects from $\frac{1}{2}$ to 1 c.cm. of 85 per cent. alcohol warmed to 45° C. through the skin to a tender spot discernable by pressure and corresponding to the point of entrance of the superior laryngeal nerve. The depth is about $1\frac{1}{2}$ cm., but it is best learnt by practice on the cadaver with a coloured fluid.

Dundas Grant.

EAR.

Bowen, W. H.—*Pneumococcal Otitis Media*. "West London Med. Journ.," April, 1908.

The author states that the most favourable source for investigation of the typical pneumococcus is the pus from the pleural cavity in cases of empyema. Films and cultures from the auditory meatus must be taken within the first week when there is a steady flow of pus outwards: after it begins to become stagnant in the meatus an infection takes place from outside. The author investigated over 100 cases in what is described as the three stages of childhood: (1) Pre-adenoid stage, up to eighteen months old; (2) adenoid stage; (3) the post-adenoid stage, which is in older people over fourteen years of age. The pneumococcus is the pathogenic organism found in all cases of acute suppuration of the middle ear. This organism may, in rare cases, infect the ear externally or through the blood stream, but usually it affects it through the Eustachian tube. The author states that the pneumococcus is found in the saliva, the crypts of the tonsil, the nose and the naso-pharynx in health; and it is generally some disturbing influence, such as a catarrh, or an operation for adenoids, or a submucous resection, which turns this simple organism into one of parasitic activity. Surgeons should, therefore, be most careful even in the simplest operations on the throat and nose to avoid shock, etc. Another explanation for otitis media in young children in the pre-adenoid stage is the habitual use of "comforters," which are often septic. The treatment for this form is to cleanse the mouth with glycerine and boracic acid. The pneumococcus may limit its pyrogenic action to the middle ear or it may attack the mastoid antrum and the mastoid cells. The early diagnosis of this state is important, and such signs as a rise of temperature, profuse discharge, the disturbed general condition of the patient and pain or tenderness on pressure must be considered. The treatment is to open up the cells freely and to procure good drainage until the virulence of the organism has been exhausted.

Andrew Wylie.

Dench, E. B. (New York).—*Otitic Brain Abscess*. "Amer. Journ. Med. Sci.," vol. cxxxiv, No. 5.

In this paper Dr. Dench reports one case each of cerebellar and cerebral abscess, and gives an analysis of 102 cases of the first and 100 cases of the second, with reference to their symptoms, the route of infection, and the value of various methods of operative procedure. The author's case of cerebellar abscess occurred in a boy, aged thirteen. An acute exacerbation of a chronic suppuration led to the performance of the radical operation, in the course of which an epidural abscess was found over the sinus. On the fourth day after the operation the temperature rose to 104° F. and the patient became lethargic and stupid and complained of headache. There was no paralysis and the optic discs were normal. That a cerebellar abscess was a probable explanation was suggested by the situation of the extra-dural abscess found at the original operation. The cerebellum was, therefore, explored, and an abscess evacuated, but death occurred within twenty-four hours. Although there had been no evidence of intra-cranial suppuration until the fourth day after the first operation, the abscess had evidently been in existence for some considerable time. In the 102 cases of cerebellar abscess which the author analyses, the infection could be traced with about equal frequency from

the lateral sinus and through the petrous portion of the temporal bone (internal auditory meatus and aqueductus cochleæ and vestibuli): other routes were rare. Of the symptoms, headache was present in 71 cases, vomiting in 54, vertigo in 30, optic neuritis in 34 of 71 examined, nystagmus in 17, and strabismus in 9. Recovery took place in 33 cases. The author holds that when the route of infection is unknown the cerebellum should be explored in front of the sinus, provided the latter does not come too far forward. A counter-opening behind the sinus is often a livable.

The case of cerebral abscess was that of a woman, aged forty-seven, who underwent the radical operation during an attack of acute mastoiditis. The progress was uneventful until one month after the operation, when there occurred a sudden rise of temperature to 102.5° F., accompanied by aphasia. During the following week the temperature tended to fall, but the aphasia persisted and a high polymorphonuclear count was noted. About a fortnight later the sudden onset of severe headache together with a rise of the temperature to 104° F. led to immediate operation. A very large abscess was found in the left inferior frontal convolution and the island of Reil. The patient died. The abscess was evidently of old standing and had been re-infected during the attack of acute otitis.

In the 100 cases of cerebral abscess analysed by the author, by far the most common route of infection was through the tegmen tympani. Headache was present in 77 cases and vomiting in 44. Vertigo occurred in 32. Optic neuritis was found in 32 of 52 cases examined. Motor disturbance was present on the side opposite to the abscess in 15 cases, on the same side in 2 cases; 52 cases recovered after operation. The abscess should always, if possible, be opened along the avenue of infection, as here the subdural space has become obliterated and the risk of secondary meningitis and hernia cerebri are therefore small. If this cannot be done and the symptoms are not very urgent the dura may be opened and the margins of the wound closed with gauze packing. This will relieve tension and secure obliteration of the subdural space; the brain substance may be safely incised twenty-four hours later.

An extensive bibliography is given.

Thomas Guthrie.

Af. Forselles, Arthur (Helsingfors).—*On Early Diagnosis and Operation in Empyema of the Mastoid Process in Acute Suppurative Median Otitis.* Leipzig, 1906.

In his monograph on acute middle-ear suppuration and the early detection of involvement of the mastoid cavities Af. Forselles recommends the estimation of the specific gravity of the discharge by Hammerschlag's chloroform and benzol method. In general he considers that a specific gravity of 1.045 or upwards indicates the necessity for the mastoid operation.

Dundas Grant.

Knapp, A. (New York).—*A Fatal Case of Sinus Thrombosis after Chronic Purulent Otitis Complicated with Cholesteatoma, Illustrating an Unusual Variety of Infection.* "Arch. of Otol.," December, 1907.

There was some delay before operation was permitted. In spite of thorough operation on the sinus, followed in two days by ligation of the jugular, pneumonia supervened with increasing cyanosis, dyspnea, and tracheal râles ending in death. The infective agent belonged to the proteus-aërogenes group. The author thinks the jugular should have

been ligated at the first operation. The patient was the subject of kyphosis, which was an unfavourable circumstance. *Dundas Grant.*

Hunt, J. R. (New York).—*Otalgia Considered as an Affection of the Seventh Cranial Nerve.* "Arch. of Otol.," December, 1907.

The "sensory" portion of this nerve consists of the pars intermedia, the geniculate ganglion, and the greater and lesser superficial nerves communicating with the tympanic plexus of the glosso-pharyngeal by means of the great and small deep petrosal nerves. Sensory fibres are also found in the facial nerve proper in the Fallopiian canal, and the nerve of Wrisberg is connected with the auditory nerve proper by several fine filaments. There are thus sensory connections with the internal ear, the tympanic mucous membrane and the external ear. Otalgia confined to these regions is attributable to a lesion of the nerve in question. If the glosso-pharyngeal was the nerve implicated, there would be pain in the throat as well. As to otalgia in general, it is often reflex, occasionally bilateral, very rarely crossed. Otalgia may be secondary to an organic lesion of the nerve or its ganglion, herpetic. It also occurs in tabes, but idiopathic otalgia, which is rare, has been attributed to scarlet fever, malaria, influenza, lead, trauma, and exposure to cold. A "point douloureux" is occasionally present in front of the antitragus.

Dundas Grant.

Tandler, J. (Vienna).—*The Operative Exposure of the Bulb of the Jugular Vein.* "Monats. für Ohrenheilk.," Year XL, No. 12.

The writer supplements the late Grunert's description of this procedure, from which his own differs in a few respects. Presuming that the radical mastoid operation has been performed and the sigmoid sinus laid bare, the jugular vein has to be exposed in the neck. During this step the accessory nerve has to be sought for, as in two thirds of all cases it crosses over the vein from within outwards (ventral course), although in one third it passes under it (dorsal course) as ordinarily described. The mastoid incision is then continued into the cervical one and the parotid is drawn gently forwards. The stylo-mastoid foramen is then identified with the finger and the facial nerve exposed and kept in sight. The tip of the mastoid process is chiselled off and is turned backwards along with the attached sterno-mastoid. The posterior belly of the digastric is next detached from the bone and turned forwards and the occipital artery is tied in two places and cut. The jugular vein is now dissected up to the jugular foramen, the border of which can be felt with the finger. A short muscle, the rectus capitis lateralis, is then detached with the periosteum and the lateral margin of the foramen jugulare is thereby laid bare. The bone is then chiselled away from the sigmoid sinus (previously exposed), and the jugular bulb can be seen and slit up. The accessory nerve in many cases anastomoses freely with the cervical nerves in the sterno-mastoid and trapezius, but it does not always do so, and, therefore, it is important to preserve it, remembering that it often passes over the vein and not (as usually described) behind it.

Dundas Grant.

Halasz, H. (Miskolcz).—*The Value of Negative Pressure (Suction) in Oto-Rhinology.* "Monats. für Ohrenheilk.," December, 1907.

The author praises Sondermann's suction apparatus in the treatment of acute suppuration of the middle ear, believing that its use has enabled

him to avoid opening the mastoid cells. He finds it useful in the diagnosis of both acute and chronic forms of nasal sinusitis and in the treatment of the acute forms, as also in ozaena and atrophic rhinitis.

Dundas Grant.

Shambaugh, G. E. (Chicago).—*The Origin of the Cells Found in the Deeper Layer of the Stria Vascularis.* "Arch. of Otol.," vol. xxxvi, No. 3.

A single row of epithelium is first found along the outer wall of the cochlear duct, separated by a distinct basement membrane from the underlying connective tissue. Next a broad reticular layer forms beneath the surface layer of epithelium, the basement membrane disappears and the blood-vessels of the reticulum are formed. In the adult the band is narrower, protoplasmic processes from the surface layer of the epithelium have penetrated the entire stria and the reticulum has been completely obliterated. The cells forming the reticulum are derived in part from the surface layer of epithelium and in part from the underlying connective tissue. The stria vascularis represents a true vascular epithelium. The article is illustrated by beautiful microscopical drawings.

Dundas Grant.

Urbantschitsch, V. (Vienna).—*Speech and Writing Disturbances, and Pareses of the Upper and Lower Extremities determined by the Sensory Nerves of the Middle Ear.* "Monats. für Ohrenheilk.," Year XLI, No. 7.

These were found to disappear in one case after operative treatment of a cholesteatoma. In another case they were excited by plugging one of the nostrils. The writer refers to his text-book for a discussion of the reflex nerve-paths.

Dundas Grant.

Richards, John D. (New York).—*Mastoiditis occurring in Diabetic Subjects, with Report of Cases.* "Arch. of Otol.," vol. xxxvi, Nos. 1 and 2.

The writer includes only cases in which in addition to sugar in the urine there are well-marked general symptoms and the clinical picture of diabetes mellitus. The prognosis in these is very unfavourable whereas in those with transient glycosuria, or glycosuria following the anæsthetic, or in the young without clinical symptoms proper, on the other hand very favourable. The two classes of cases should be carefully distinguished. In one case there was some degree of aphasia. The pupil on the diseased side was relatively dilated. Mastoid operation revealed extensive disintegration of bone. A few days later coma and death followed. Autopsy revealed meningitis, general sinus thrombosis and sub-cortical cerebral hæmorrhage. The writer at first attributed the aphasia to epidural abscess, but after death to the cerebral hæmorrhage. From the symptoms the case simulated one of temporo-sphenoidal abscess. In three other cases operated on by the writer recovery took place. He had seen five other cases. He notes certain peculiarities in mastoiditis in diabetics. The acute otitis usually requires several repetitions of paracentesis. The mastoid symptoms and the post-operative progress are slow. The good effect of proper diet and codeine was marked in two cases. Death occurred in six out of the nine cases, and, as a rule, in diabetic coma a few days after the operation. Chloroform seemed on the whole preferable to ether as an anæsthetic in these cases. Success depends largely on rapidity of operation, as well as on very free removal

of bone so as to expose the dura extensively. No stitches should be introduced. Dyspnea is the most unfavourable symptom, the amount of the sugar being of little prognostic importance. *Dundas Grant.*

Burger, H. (Amsterdam).—*A Case of Menière's Disease, Depending on an Inflammation of the Nasal Accessory Sinuses.* "La Presse Otolaryngol. Belge," February, 1908.

An account of a case of unilateral labyrinthine and middle-ear deafness, accompanied by severe attacks of vertigo, nausea, and tinnitus, in which treatment of a suppurating maxillary antrum by the radical operation was followed by a cessation of the vertiginous crises.

The author does not confine the term "Menière's disease" to cases in which there is hemorrhage into the labyrinth, but considers that it should be used for all cases in which there are attacks of vertigo, with vomiting or nausea, tinnitus and deafness. *Chichele Nourse.*

MISCELLANEOUS.

Sommerville, D. (London).—*Treatment of Syphilis with Mergal—a Modern Preparation of Mercury.* "Folia Therapeutica," January, 1908.

This is a mercuric cholate which can be administered by the mouth, and is tolerated in doses sufficiently large to carry out an energetic treatment. It is administered in capsules each containing $\frac{3}{4}$ gr. of mercuric cholate and $1\frac{1}{2}$ gr. of albuminate of tannin (Greeff & Co., London). These capsules may be used daily in an ordinary case for periods of from eight to twelve weeks, but for the first five or six days it is recommended to restrict the number to one thrice daily, though most may start off with twice that quantity. Syphilides of the skin and mucous membrane disappear after four or five weeks' treatment. During its administration the patient must lead a healthy life and avoid any food likely to cause irritation of the digestive organs. *Dundas Grant.*

v. Brunn and others (Tubingen).—*On Recent Endeavours to Improve and Simplify the Disinfection of the Skin.* "Münch. med. Woch.," March 17, 1908.

v. Brunn recommends chiefly pure 90 per cent. alcohol. Bulow spoke well of Heusner's iodine-benzine method, the iodine being easily removed afterwards by means of thio-sulphate of sodium, also of the permanganate method. v. Brunn had given up the iodine-benzine, also a gummy coating known as chirosoter. *Dundas Grant.*

Groedel (Naubeim), and **Horn** (Erlangen).—*On Instantaneous Röntgen Photography with the Apparatuses at present Available.* "Münch. med. Woch.," March 17, 1908.

The original article alone can be of use to radiographers. Three radiograms of the thorax illustrating the process accompany the article. *Dundas Grant.*

Wiesner (Aschaffenburg).—*Fulguration by the De Keating Hart Method.* "Münch. med. Woch.," March 17, 1908.

The current is taken from the resonator of a high-frequency resonator and the electrode is formed by a wire passing through the distal half of an insulated holder through which also a stream of carbon dioxide, from a

cylinder, passes at the same time, to cool the spark and the hard rubber portion of the electrode. The writer employs porcelain tips of various forms through which the wire can be passed. He is not yet able to report results.

Dundas Grant.

Trifiletti (Naples).—*Report of the University Year 1906-1907 of the Laryngological Dispensary of the Royal University of Naples, Directed by Dr. Massei.*

This is the twenty sixth report, the total number of patients treated during the year amounting to 1148, which is very considerable when we consider that it is confined to laryngology alone, and that the University year is comparatively short, because the dispensary, to the great disadvantage of science and of the patients, is closed during the vacations. In concluding the statistics of the cases classed under their various diagnoses, the writer finishes with some judicious remarks; among others he points out that iodic cataphoresis has given good results in a number of cases of goitre in Professor Massei's clinic.

V. Grazi.

REVIEWS.

Text-Book of Otology for Physicians and Students, in 32 lectures. By Dr. FR. BEZOLD, Professor of Otology at the University of Munich, and Dr. FR. SIEBENMANN, Professor of Otology at the University of Basle. Translated by Dr. J. HOLINGER, Chicago. Chicago: E. H. Colegrove Co., 1908. Pp. 314.

The name of Bezold is so well known and esteemed by all students of otology that it must have been a source of great regret to those who do not read German that up to the present no English translation of his "Text-Book of Otology" has been available for them. That want has now, however, been supplied by Dr. J. Holinger, of Chicago, who has undertaken the difficult task of rendering Bezold's scholarly though somewhat involved German into our vernacular tongue.

Professor Bezold's work is founded on his own observations and deductions, and is, therefore, eminently personal. His teaching differs in some details from that of his younger contemporaries, but will in all the essentials of otology meet with general acceptance. The reasons for his opinions are always set forth with the utmost fulness, and in most instances will be found convincing. It will be a pleasure to note the appreciation of the priority of Dr. Newton Pitt's statistical and analytical report, published a considerable number of years ago in his Goulstonian lecture. This was founded on the examination of the reports of 9000 consecutive *post-mortem* examinations, which included fifty-seven cases of death resulting from the complications of suppurative disease of the ear. Professor Bezold describes a good many of his own experimental observations, many of which were made by means of a manometer fixed into the superior semi-circular canal of the labyrinth, by which he was able to test the effect of pressure exerted in various ways on the labyrinthine fluid. He found that when pneumatic pressure was effected through the Eustachian tube, thereby acting on the membrane of the fenestra rotunda, the movements of the fluid in the manometer

were four and five times as great as when the pressure was exercised through the external meatus, the stapes in the fenestra ovalis being the part moved in the latter mode of action. The physiology of the muscles of the Eustachian tube is well described, and the author believes that the calibre of the tube may be diminished by the mechanical pressure of an enlarged pharyngeal tonsil. Bezold's minute study of tuning-fork tests is well known, and their description as given in this work will be read with the greatest interest. He devotes considerable attention to the study of the rate of decrement of vibration of tuning-forks, taking one medium-toned fork as a type, the curve of which is illustrated. He does not, however, bring out the fact that the curve is different for the different forks, each of which has to be studied and subjected to calculation for itself. His work in this direction has, however, inspired other investigators, such as Ostmann, Uehermann, Grant and Womack, to investigate the curves of decrement of the various forks of the series. Bezold's views in regard to perforation in Shrapnell's membrane are somewhat peculiar, inasmuch as he does not recognise its occurrence as the result of an acute inflammation, but only as caused by long-standing Eustachian obstruction. We have no doubt that this view is arrived at as the result of long and careful observation, but cannot help thinking that his experience in this respect has been exceptional. Although conservative in his tendencies in regard to operation, he expresses the opinion that operative treatment is often most beneficial in tuberculous disease of the petrous bone, and also that diabetes is no contra-indication for opening the mastoid cells. His account of oto-sclerosis is highly instructive, more especially with regard to the clinical diagnosis, which he has had opportunities of confirming by *post-mortem* examinations. It is interesting to observe that he omits all reference to Gelle's test, which we certainly think is deserving of attention, in spite of the fact that its data are to some extent discounted by the remarkable degree to which the labyrinthine pressure can be raised by compression of air in the tympanic cavity conveyed through the membrane of the fenestra rotunda. The operations described in this book are only the simpler ones, such as the chiselling open of the mastoid cavities for acute inflammation. On this account the surgical operator will have to look elsewhere for a description of the major procedures, such as the radical mastoid operation, the operations on the sinuses and bulb of the jugular vein, and the evacuation of cerebral abscesses. The lectures on diseases of the inner ear have been mainly contributed by Professor Siebenmann, of Basle, whose chapters on the subject are extremely complete. Professor Bezold could scarcely be expected to write a book on otology without giving special prominence to a subject which he appears to have had very closely at heart, namely, deaf-mutism. His devoted labours in connection with the investigation of the remnants of hearing in deaf-mutes are sufficient of themselves to make mankind his debtors, and it need hardly be said that the lecture on the subject contained in this book will be found both stimulating and instructive. His investigations with his "continuous" tone series are of the utmost importance. The book, so far as it has issued from Professor Bezold's hands, is scarcely open to criticism except in very minor details, and we are greatly indebted to Dr. Holinger for having translated it into English. We should, however, be failing in our duty if we were to state that this translation is in all instances what we could wish it to be, and we think it greatly to be regretted that Dr. Holinger did not submit it to an English-speaking aurist who was at the same time familiar with otological terminology and with the shades of

meaning of English words. No reader can peruse this book without feeling this, but at the same time we are sure that none will grudge the little extra effort required to decipher the obvious meaning in cases where the language is obscure. As we have said before, Professor Bezold's writing in German is frequently somewhat profound, and the difficulty in translating it must frequently have been extremely great. For those, however, who wish to make themselves masters of Professor Bezold's monumental contributions to scientific otology, the solecisms in the translation will form no barrier, and they will be amply repaid by the information derived from this very complete and by no means bulky volume. In the second edition Dr. Hölinger will no doubt take the precaution of submitting his work to more thorough literary revision. His labour has not been lost, and its value will be highly appreciated by all his readers.

Sinusiti Frontali. Dr. ROBERT FALCONE. Naples, 1908.

This work of 240 large octavo pages treats of the anatomy and histology of the frontal sinuses, together with a full account of the pathology and clinical features of the diseases to which these cavities are liable. The book, except in a limited sense to be presently noticed, lays no claim to originality, but as an epitome of the views of all who have written on these subjects in the last twenty-five years is a most valuable and welcome addition to the literature. It contains what appears at the date of publication to be an exhaustive bibliography of 806 references, and is further enriched by two coloured micro-photographs, one representing the lymph spaces of the mucous membrane of the sinus and the other those of the bone (in the dog), both infected from the meninges. Of the work itself there is little to say save that the immense mass of information is well arranged, and, even in the absence of a detailed index so common in continental works, is, on the whole, readily accessible for reference. One gathers from the title-page that this book has been compiled with special regard to the pathogenesis and termination of cases of frontal sinusitis, and the author gives details of a series of experiments he made in conjunction with Dr. Bertarelli on dogs with a view to ascertaining the correctness of the theory of Harke, Hajeck and others that the infecting material was forced into the sinus during violent sneezing or blowing of the nose. The results of these experiments seem to confirm this view. The chapters on fronto-orbital, ocular, and cerebral complications are written with great care and completeness, and bring into deserved prominence the many serious consequences that may arise from an affection that is yet only too often regarded as of minor importance, dangerous only from a cosmetic point of view. There are no illustrations in this book other than the micro-photographs. This can hardly be looked on as a drawback by the serious student, who will prefer to work with the bones in his hands. It is to be hoped that this work will soon appear in an English dress.

Vignettes of the Regency. By WILLIAM TOYNBEE. (Illustrated.) London, 1907.

The name of Toynbee is an immortal one in the history of British otologists, the present generation of whom take a pride in looking upon him as their father in otology. His son, Mr. William Toynbee, has departed from the scientific and adopted a literary line of pursuit. His

volumes of verse have already achieved wide acceptance, and this study of the fascinating period of the Regency will only add to his already great reputation. In the speech of Professor Politzer's which we recently reproduced, it was pointed out how necessary it was for the practical scientific worker to widen and refresh his mind by the study of works of art and literature. We, therefore, recommend this book to our readers both on account of the name of its author and also from its great interest in reproducing the personalities of some of the more famous statesmen and courtiers of the period. The writer is, to some extent, an apologist for the "first gentleman in Europe," and his writing is a counter-blast to the disparaging accounts of him with which we are so familiar. Lord Brougham comes in for a full share of trenchant criticism. The book is illustrated by several very well-executed portraits. We could only wish that history had permitted the omission of the painful FitzRoy incident.

Beiträge zur Anatomie, Physiologie, Pathologie und Therapie des Ohres, der Nase und des Kehlkopfes (Contributions to the Anatomy, Physiology, Pathology and Therapeutics of the Ear, Nose and Throat).
By Professors PASSOW and SCHAEFFER. Berlin: Karger, 1908.

The first number of the first volume of this important addition to our literature is now before us, and the names attached to it are sufficient assurance that it will occupy a very important position. In the present number we find a paper by Dr. Lange (Berlin) on the "Pathological Anatomy of Inflammation of the Labyrinth starting in the Middle Ear," well illustrated by some beautifully clear reproductions of anatomical sections. Another is by Professor Passow on the "Closure of the Osseous Wound after Antrum Operation," meaning thereby the simple opening of the mastoid process with a view to bringing about healing with an almost invisible scar and scarcely perceptible depression; he achieves this by the method of the implantation of periosteum. Professor Schaeffer contributes a study on the rate of transmission of sound and the length of sound-waves in air at different temperatures, and appends to it tables of the results arrived at. These will be found valuable by all who strive after that scientific accuracy without which our practical work cannot make its fullest advances, even though at first sight the application to practice of such inquiries may not be very confident. Dr. Gutzmann, whose work in regard to the physiology of voice is well known, writes on the position and movements of the larynx during normal and pathological speech. Good soup is said to be a prelude to a good dinner, and if the same is true of periodicals, the subsequent numbers of the journal we are now concerned with will not be wanting in brilliance and interest.

The Ophthalmoscope, vol. vi, No. IV. (A monthly review of current ophthalmology.) Edited by SYDNEY STEPHENSON. London: George Pulman & Sons.

The latest number of this valuable periodical is mainly devoted to the ocular and orbital diseases which occur as complications or results of diseased conditions in the nose and accessory sinuses. Dr. StClair Thomson treats "The Frequency of Orbital Manifestations of Nasal Sinusitis." He questions whether we should not cease to regard orbital cellulitis as a primary infection, but holds the view that although infection from the skin and conjunctiva may be the origin of the condition

in a certain number of instances, we should look to the nose and its accessory sinuses for the source of sepsis in the remaining majority. Dr. Evans gives an account of cases which have come under his notice as complications of disease of the maxillary antrum, frontal sinus, ethmoidal cells, and sphenoidal sinus respectively, with some interesting remarks on traumatism as a cause of hemianopsia. He advises that in all cases of retro-bulbar neuritis, and especially in unilateral and bilateral restriction of the peripheral visual fields, the possibility of nasal disease should always be borne in mind. Dr. Manning Fish's study of thirty-six consecutive cases of optic neuritis, tabularly arranged, is familiar to our readers. One of the most important papers is one by Mr. Sydney Stephenson, on "Three Cases of Malignant Disease of the Accessory Sinuses," which will be all the more interesting as being considered from the point of view of the ophthalmic surgeon. This paper is enriched by the reproduction of microscopical sections. Two cases were of the nature of endothelioma of the ethmoidal-sphenoidal sinus and epithelioma of the antrum of Highmore respectively as proved by microscopical examination, but in the first of the series the diagnosis was made on the strength of a clinical examination. Mr. Howell Evans contributes a valuable article on the applied topographical anatomy of the sinuses accessory to the nasal cavities and their relations to the orbit and to its more important contents. The greatest interest will probably attach to the description of the ethmoidal sinuses, the varieties in which are classified according to Onodi's grouping, with which our readers are fairly familiar. This number of the *Ophthalmoscope* is so full of material which the rhinologist will find not merely interesting but absolutely indispensable, that we can only again insist upon the advisability of every one of our readers possessing himself of it.

The Medical Annual: A Year-Book of Treatment and Practitioner's Index.

Twenty-sixth year. Thirty-two contributors; numerous illustrations, plain, coloured, and photographic. Bristol: John Wright & Co.; London: Simpkin, Marshall, & Co., 1908.

It is with great pleasure and profit that we peruse the "Medical Annual," issued by Messrs. Wright, of Bristol; its long series of volumes is one of the most useful in our library. To our readers the present volume will certainly commend itself on account of the excellent articles on diseases of the throat, nose, and ear, contributed by Dr. Watson Williams, Dr. George Cathcart, and Dr. Kerr Love, as affording a well-reasoned *resumé* of the work in these subjects which has been carried out during the past year. The non-specialist will, however, find them still more valuable, as they may possibly be his chief source of information, and, as he will find, a most reliable and instructive work. To the specialist the work is, however, particularly valuable, as it gives him a readable and useful review of the progress of medicine and surgery in general. Without these it is impossible for him to reach his highest state of efficiency in his special department. The writer values, therefore, his annual perusal of this book most highly, and can recommend it strongly to all his readers, both senior and junior. The generosity of the publishers in providing ample illustrations is shown in the special articles with which we are concerned, stereoscopic photographs as well as coloured plates being freely introduced. A word of special praise is called for for the important plates in illustration of Killian's direct laryngoscopy, tracheoscopy, and bronchoscopy.

Dundas Grant.

Manuel des Maladies du Tube Digestif (Manual of Diseases of the Digestive Tube). Edited by Drs. G. M. DEBOVE, CH. ACHARD, and J. CASTAIGNE. Part I: "Mouth, Pharynx, Œsophagus, etc.," by Drs. PAISSEAU, RATIER, and ROUX. With illustrations in the text. Paris: Masson & Co., 1907.

This work commences with an account of the various forms of stomatitis, to which is prefixed a short account of the bacteria of the mouth, saprophytic and pathogenic, and a consideration of means of protection against the action of the microbe in question. The general statement is made that in most cases the infection, favoured by an enfeeblement of the power of resistance of the soil, is produced by the intermediary of a preliminary local disturbance of the mucous membrane, but it is sometimes the local and sometimes the general condition which plays the principal part in the aetiology. Thus there are stomatidites due to general as well as to local causes. The various forms of glossitis are instructively described. The authors admit the possibility of leucoplakia occurring apart from syphilis, though most usually along with it. The anginas are divided into the two large clinical groups, the *red* and the *pseudo-membranous*. Among the latter the "herpetic" forms are those least familiar to us. Possibly we have a tendency to mass them with our lacunar tonsillitides and to overlook the preliminary period of pain and constitutional disturbance which precedes the development of objective changes in the throat. The chapter on tuberculosis of the mouth, including the tuberculous gumma of the tongue, deserves special attention. Useful hints are given as to the radioscopic examination of the œsophagus in the section on the diseases of that tube. The work is well worthy of study, and so far as our specialties are concerned it is well up to date. We could only desire some additional illustrations.

SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

WE have received the preliminary programme from the Sixteenth International Medical Congress to be held at Buda Pesth from August 29 to September 4, 1909. Separate sections will be devoted to Laryngology and Otology, and it is interesting to note that there is also a section for Stomatology, some of the items in the programme of which will, no doubt, interest our readers.

In Section 15 (President, Professor I. de Navrátil, Sec., Dr. Z. Donogány), devoted to Rhinology and Laryngology, are promised the following reports:

BAKROWICZ (Krakau).—"Treatment of Scleroma of the Upper Air-passages."

BRESGEN (Wiesbaden).—"Hay-fever, Nervous Asthma, and Swelling of the Nasal Mucous Membrane."

BURGER (Amsterdam).—"Nasal Vertigo."

CASTEX (Paris).—"Operative Treatment of Malignant Tumours of the Nose and Pharynx."

CHIARI (Vienna).—"The Diagnosis and Treatment of Carcinoma of the Larynx."

CITELLI (Cutania).—"Adenoid Vegetations."

DENKER (Erlangen).—"Affections of the Orbit due to Disease of the Nasal Accessory Sinuses."

GLUCK (Berlin).—"Diagnosis and Treatment of Carcinoma of the Larynx."

GROSSMANN (Vienna).—"Nasal Asthma."

HAJEK (Vienna).—"Diseases of the Ethmoid Labyrinth and of the Sphenoidal Sinus."

HERYNG (Warschau).—"Surgical Treatment of Tuberculosis of the Larynx."

KILLIAN and EICKEN (Freiburg).—"The Scope of Direct Methods of Investigation."

KUBO (Fukuoka, Japan).—"The Surgical Treatment of Stenosis of the Larynx and Trachea."

LUC (Paris).—"Cranial and Intra-cranial Complications of Suppuration of the Frontal Sinus."

MASSEI (Naples).—"The Surgical Treatment of Tuberculosis of the Larynx."

MOURE (Bordeaux).—"Operative Treatment of Malignant Tumours of the Nose and Pharynx."

SARGNON (Lyons).—"Surgical Treatment of Laryngo-tracheal Stenosis."

SCHADLE (St. Paul, U.S.A.).—"Hay Fever, Asthma, and Other Neuroses of Nasal Origin."

SCHMIEGELOW (Copenhagen).—"Primary Malignant Disease of the Trachea Treated by Resection of the Trachea."

SCHRÖTTER (Vienna).—"Treatment of Scleroma of the Upper Air-passages."

SEMON (London).—"The Diagnosis and Treatment of Cancer of the Larynx."

UCHERMANN (Christiania).—"The Surgical Treatment of Stenosis of the Larynx and Trachea."

ZWAARDEMAKER (Utrecht) and BOUMANN (Amsterdam).—"Experimental Phonetics from the Medical Standpoint."

Papers are also promised by BROECKAERT (Gand), BOTEY (Barcelona), KOSCHIER (Vienna), LAURENS (Paris), RAOULT (Paris), SEIFERT (Würzburg), TAPTAS (Constantinople), ZARNIKO (Hamburg).

In Section 16 (President, Professor J. Böke, Sec., Dr. S. Szenes), which includes simultaneously the Eighth International Congress of Otology, the following reports are announced :

ALEXANDER (Vienna).—“Inflammatory Infections of the Labyrinth.”

BIHL (Vienna).—“Bier's Passive Hyperemia in Diseases of the Ear.”

BOTEY (Barcelona).—“Is it Necessary or Not to Tie the Internal Jugular in Thrombo-phlebitis of the Transverse Sinus?”

BRIEGER (Breslau).—“On the Value of Ligation of the Jugular in Otogenic Pyæmia.”

BRÜHL (Berlin).—“On the Hearing Tests and the Results of Anatomical Investigation in Oto-sclerosis and Nervous Deafness.”

CHEATLE (London).—“Sclerosis of the Temporal Bone resulting from Middle-ear Suppuration.”

COMPAIRD (Madrid).—“The Diagnosis and Treatment of Purulent Intra- and Extra-cerebral Abscess of Otitic Origin.”

DELSAUX (Brussels).—“Changes in the Hematological Formula in Intra-cranial Complications of Otitis.”

DENCH (New York).—“Diagnosis and Treatment of Acute Otogenic Meningitis.”

DENKER (Erlangen).—“Anatomy of Deaf-mutism.”

FRIEDRICH (Kiel).—“Clinical Observations on the Non-suppurative Affections of the Labyrinth.”

GRAZZI (Florence).—“Conservative Medical Treatment of Chronic Otitis Media.”

HABERMANN (Graz).—“Oto-sclerosis.”

HAUG (Munich).—“Conservative Treatment of Chronic Middle-ear Suppuration.”

HEIMANN (Warsaw).—“Oto-sclerosis.”

JACQUES (Nancy).—“Otological Infection in the School.”

LERMOYEZ (Paris).—“Diagnosis and Treatment of Acute Otogenic Meningitis.”

LOMBARD (Paris).—“Paralysis of the Motor Nerves along with Acute and Chronic Suppurative Otitis.”

MACNAUGHTON-JONES (London).—“The Prophylactic Treatment of Suppurative States of the Middle Ear, Anticipative of Indications for Radical Operations of any kind.”

MÖLLER (Copenhagen).—“Chronic Progressive Deafnesses and their Classifications.”

MOURE (Bordeaux).—“Operations on the Bulb of the Jugular Vein.”

MOURET (Montpellier).—"The Routes of Propagation of Infections of the Middle Ear towards the Interior of the Cranium."

PANSE (Dresden).—"Histology of the Data derived from Hearing Tests."

PRITCHARD (London).—"Oto-sclerosis."

SCHMIEGELOW (Copenhagen).—"Treatment of Suppurative Labyrinthitis."

SIEBENMANN (Bâle).—"Oto-sclerosis."

SPIRA (Krakau).—"Bier's Passive Hyperæmia in Diseases of the Ear."

SCAREZ DE MENDOZA (Paris).—"Indications and Contra-indications for whole Anaesthesia in Oto-rhino-laryngological Operations."

TAPTAS (Constantinople).—"Thrombo-phlebitis of the Lateral Sinus of Otitic Origin."

TRÉTRÔP (Antwerp).—"Labyrinthine Inflammations."

TRÉTRÔP (Antwerp).—"Report on Otological Terminology."

UCHERMANN (Christiania).—"On Sinus Phlebitis and Sinus Thrombosis in regard to Prognosis and Treatment."

WITTMACK (Jena).—"Diseases of the Auditory Nerves."

YEARSLEY (London).—"The Treatment of Chronic Non-suppurative Middle-ear Inflammation."

Papers are promised by BABER (London), BAGINSKY (Berlin), BARKAN (San Francisco), BOTÉY (Barcelona), BROECKAERT (Gand), GÖRKE (Breslau), LAKE (London), MACNAUGHTON-JONES (London), MOLL (Arnheim), MÖLLER (Copenhagen), PANSE (Dresden), PRITCHARD (London), SIEBENMANN (Bâle), SNOW (Syracuse), SPIRA (Krakau), SCAREZ DE MENDOZA (Paris), THOMSON (London), TRÉTRÔP (Antwerp).

In the Section 17, devoted to Stomatology, we observe that Dr. Logan Turner, of Edinburgh, has promised a paper on "Odontogenic Suppurative Maxillary and Nasal Sinusitis and their Complications."

The British Committee is presided over by Dr. F. W. Pavey, and the Secretary is Dr. D'Arcy Power, from whom all necessary information may be obtained.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

HÆMORRHAGE FOLLOWING QUINSY; LIGATION OF THE COMMON CAROTID ARTERY; RECOVERY: WITH A STUDY OF 51 CASES OF HÆMORRHAGE IN CONNEC- TION WITH PHARYNGEAL SUPPURATIONS.¹

BY JAMES E. NEWCOMB, M.D.,

Fellow, American Laryngological Association, and of the New York Academy of
Medicine; Clinical Instructor in Laryngology, Cornell University Medical
College; Consulting Laryngologist to the Roosevelt Hospital, New York City.

THE title of this paper has been so worded as to include cases which have been reported under various headings, and to permit a proper grouping of them. The majority of the hæmorrhages have occurred in connection with ordinary quinsy. The subject was brought to the attention of this Association, in 1900, by Dr. W. F. Chappell, who reported a case under the title of "Hæmorrhage from a Circumtonsillar Abscess," and stated that he had found ten similar cases recorded ("Transactions," 1900, page 213). The personal experience of the writer, hereinafter described, has led him to make an extended study of the matter, and fifty cases in all have come to light. In proportion to the vast number of cases of this malady, which run their clinical course without untoward incident, the number of those with hæmorrhages is manifestly extremely small, but the alarming possibilities which this complication presents, render it obligatory upon us always to bear it in

¹ Paper read at the Thirtieth Annual Congress of the American Laryngological Association, held at Montreal, May 11—13, 1908.

mind, and in case it happens, to have a well considered plan of procedure.

Through the courtesy of Dr. John D. McBarron, I am able to report the following case, seen in consultation with him :

The patient was a stout, plethoric German, aged fifty-five, married, and well-to-do. He lived very comfortably, and was a rather free consumer of alcohol. His vessels showed distinct arterio-sclerosis. There was no history or evidence of specific disease, and his urine, which had been examined within six months, showed no evidence of renal trouble. For a period of between thirty-five and forty years he had had numerous quinsies, and in the intervals between his attacks much treatment with reference to preventing recurrence of his throat infection. This had been so far successful that he had enjoyed an immunity for ten years. In none of the previous attacks had there been any clinical features out of the ordinary.

On February 3 of the present year, a new attack came on, and Dr. McBarron found both tonsils inflamed and suspected commencing suppuration. On February 6th local conditions indicated a pointing of pus on the left side, rather far out into the soft palate. An incision was made, the knife going through brawny tissue for about three-eighths of an inch, and then apparently entering a cavity which, on withdrawal of the blade, voided about a drachm of healthy-looking odourless pus and partially collapsed but almost immediately became distended with blood, some of which was spat out and was apparently venous. The incision was enlarged with a stiff probe, the clots turned out, various astringents used, peroxide injected, and the bleeding ceased.

Some thirty-six hours later, just as Dr. McBarron was in the house visiting his patient, the bleeding recurred, and this time the colour of the blood was distinctly arterial. It was at this stage that the writer was called in. The blood was coming from the original pus cavity. Bleeding was not severe but persistent. The cavity was cleansed and packed with a strip of gauze dipped in a solution of aceto-tartrate of alum. Bleeding was again checked. The gauze was removed the next morning without incident. Some fourteen hours later bleeding recurred, and was now more persistent and in increased amount. Another attempt was made to pack the cavity, which was mainly in the soft palate, when it was discovered that the suppurative process had perforated the posterior surface of the palate and that the gauze was all going into the pharynx. It was withdrawn and recourse had to ice internally

and externally, together with the usual applications but all to no avail. Hæmorrhage continued at intervals, although the total amount lost was not enough to exhaust the patient, but he had become pretty well demoralised from loss of sleep during the days of his illness and from the fact that he had been unable to swallow but scanty nourishment.

It was now evident that something more radical must be done for we were unable to feel any security against the occurrence of what might be an alarming hæmorrhage. It was impossible to locate the exact source of bleeding and the sloughing condition of the entire area affected rendered any plan of suturing out of the question. The question of ligating one of the large arteries came up and Dr. Charles N. Dowd, a general surgeon of our city, was called in. After a full consideration it was decided to ligate the common carotid artery on the side involved, and this was done about 9 a.m. on the morning of February 9. The patient's habits with reference to alcohol made the giving of an anæsthetic a very difficult procedure but it was carried out in a masterly manner by Dr. Thomas G. Bennett. Chloroform was used, and after the man was fairly under its influence stiff rubber tubes were passed through the nares, their proximal ends loosely wrapped with gauze on which the chloroform was poured and the pharynx stuffed with gauze. This prevented the leakage of blood down the throat during the ligation of the artery. The latter was done by Dr. Dowd without incident. Two ligatures were passed, one with single strand and one with double, about half an inch apart. As soon as they were tightened the bleeding instantly ceased, and never returned. The patient made a good recovery from the operation. There was no disturbance of cerebration. He complained of considerable neuralgic pain all over the head, and had difficulty in sleeping at night. These symptoms were successfully combated with the usual remedies, and a perfect eventual recovery ensued. About three weeks after operation a pulse could be detected in the left temporal region.

A careful and prolonged search through the literature has brought to light fifty additional cases which may properly be placed under the title selected for this paper. As always happens in a collation of cases extending over a long period of years, classification is somewhat difficult as each reporter has followed his own ideas in setting forth the particulars of his own experience. It seems logical to make of the material here presented the following subdivisions:

GROUP 1.—SPONTANEOUS OPENING OF THE ABSCESS; IMMEDIATE
HÆMORRHAGE.

A. *Fatal Cases.*

Caytan. Male, aged thirty-eight; no operation; ulceration of the internal carotid.

Grisolle. No particulars given; no operation; ulceration of the internal carotid.

Lefort. No particulars given; no operation; bleeding believed to have come from the internal carotid.

Méry. No particulars; no operation; abscess led to ulceration of the internal carotid.

Macgregor. Male, aged twenty; no operation; tumour appeared in right side of neck, running down to the mastoid process. Autopsy revealed a circumton-sillar abscess communicating with the internal carotid by an opening the size of a small bougie.

Monod. Male, aged thirty-eight; no operation; probable ulceration of internal carotid.

Norton. Female, aged four; no operation; incision of abscess was refused by parents. Autopsy revealed ulceration of internal carotid.

B. *Recoveries.*

Dunn. Child, aged three and a half; bleeding immediate, and recurred 24 hours later; cervical hæmatoma; ligation of common carotid, after which tumour gradually decreased in size; bleeding was seen to come from the posterior faucial pillar.

Luke. No particulars; bleeding immediate and recurrent; ligation of common (?) carotid.

Messiter. Male, aged twenty-four; immediate bleeding, profuse and recurrent; initial hæmorrhage on fourth day of a quinsy, and recurrence on the nineteenth day. Ligation of common carotid.

Pircher. Male, aged twenty-two; bleeding immediate and recurrent; ligation of common carotid. Definite statement that no bad effects followed the operation.

Summary of Group 1: 11 cases, 7 fatalities and 4 recoveries.

GROUP 2.—SPONTANEOUS OPENING OF THE ABSCESS; SECONDARY
HÆMORRHAGE.

A. *Fatal Cases.*

Bourguet. Male, aged twenty; bleeding recurrent; no operation.

Brewer. Male, aged twenty-five; small immediate and later recurrent hæmorrhage; no operation. An effort was made to secure pressure against the posterior surface of the soft palate by means of a small roll of gauze, to which were attached tapes coming through the nares. Arrest of hæmorrhage for a while, but later fatal recurrence; supposed rupture of a small abscess on the posterior surface of the soft palate.

Clayton. No particulars; no operation; ulceration of internal carotid.

Hall. Male, aged twenty-six; bleeding came on two hours after the abscess burst. Fatality probably due to rupture of a carotid aneurism, a few minutes

previously the patient had complained of a "balloon-like" feeling in his throat; no operation.

Müller. Male, aged forty-four; recurrent pus and blood; no operation. Autopsy showed facial artery thinned and ulcerated; cavity full of pus at bottom of left tonsil.

Reeves. Few particulars; hæmorrhage same day as opening of abscess, and recurrent. Operation proposed but refused.

Vergeley. Male, aged thirty-four; blood and sphacelus on bursting of abscess, and again a few hours later. Operation refused. Autopsy showed in retrotonsillar space a cavity the size of a pigeon's egg, full of clots and sphacelus; internal carotid cleanly severed about two inches from bifurcation of the common trunk.

Walker. Few particulars; hæmorrhage 18 hours after abscess burst; tumour formed along right side thyroid cartilage, communicating with abscess; no operation.

B. *Recoveries.*

Ehrmann. Male, aged twenty-two; hæmorrhage on the eighth and ninth day; ligature common carotid; supposed lesion of internal carotid.

Moizard. Male, aged forty; large hæmorrhage in 24 hours, causing syncope, which checked bleeding; clot seen *in situ* in vessel-wall; no operation; ether, ergotin hypodermically, rest and carotid compression.

Marotte. Male, aged thirty; hæmorrhage in 48 hours; no operation; large doses of quinine given for some days.

Postempski. Male, adult; hæmorrhage 24 hours after bursting of abscess; ligation of common carotid artery; suspected lesion of internal carotid.

Stonpy. Male, aged twenty-two; hæmorrhage on eighth day; ligature of external carotid; massive inflammation had appeared in region of submaxillary gland; incision for ligature encroached on this area and gave exit to considerable clotted blood, and, in spite of ligature, external bleeding continued for awhile, but patient eventually recovered.

Veillard. Male, aged twenty-six; recurrent hæmorrhage some hours after abscess burst, and recurrences; no operation; ice and rest.

Weinlechner. Male, aged thirty-seven; hæmorrhage two days after abscess opened; ligature of common carotid with immediate recovery, but evidences of disturbed muscular power appeared on the opposite side of the body. In six weeks this had nearly disappeared; later death from apoplexy.

Summary of Group 2: 15 cases, 8 fatalities and 7 recoveries.

GROUP 3.—ABSCESS OPENED BY INCISION; IMMEDIATE HÆMORRHAGE.

A. *Fatal Cases.*

Duke. Male, aged thirty-two; pulsatile tumour had appeared in tonsillar region; ligature of common carotid immediately stopping pulsation; ligature came away on sixteenth day, and on the twenty-first day the man appeared perfectly well and was dismissed; one week later he went on a debauch and had a fatal hæmorrhage.

Lebram (second case). Male, aged two; no operation; bleeding also from ear.

Fehleisen. Male, aged thirty-four; after incision clots were turned out of abscess cavity, but threatening dyspnea necessitated tracheotomy, during which patient died; swelling had appeared at angle of jaw, following angina, with

fluctuation over it—internal structures were pressed toward middle line; no bruit or pulsation in pharynx; carotid vessels were found lying in purulent foci and perforated at bifurcation.

Liston (incomplete report). Ligation of common carotid, which did not control hæmorrhage.

B. *Recoveries.*

Lebram (first case). Female, aged nine; hæmorrhage from pharynx, nose and ear; ligation of common carotid; hemiplegia followed ligation.

Long (incomplete report). Free bleeding followed incision; later patient was found choking and was resuscitated with great difficulty; no operation.

McBarron (case reported in this paper). Male, aged fifty-five; hæmorrhage immediate and recurrent; arterio-sclerosis; ligation common carotid.

Summary of Group 3: 7 cases; 4 fatalities, 3 recoveries.

GROUP 4.—ABSCESS OPENED BY INCISION: SECONDARY HÆMORRHAGE.

A. *Fatal Cases.*

Pitts. Male, aged thirty-nine; hæmorrhage twenty-four hours after incision and recurrent; ligation common carotid; autopsy showed left tonsil replaced by cavity, and the internal face of the internal carotid bathed in pus, with a perforation the size of the tip of the little finger.

Watson (incomplete report). Hæmorrhage forty-eight hours after incision; ulceration of lingual artery found.

(In this category it seems proper to include two cases reported by Kaplan, although they did not present the usual clinical features of an ordinary quinsy. The incisions in these cases were made externally, but both cases have been reported as hæmorrhage, due to circumtonsillar abscess. The surgical conditions, and especially the problems they offered, make this classification here followed logical. For a summarised history of the cases, taken from their original source of publication in one of the Russian journals, I am under obligations to Dr. S. M. Jacobs, of New York.)

Kaplan (first case). Male, aged twenty-two; a fluctuating swelling, the size of an egg, appeared at the angle of the jaw externally; tonsil red and inflamed; incision revealed a deep pus cavity, leading toward throat; wound did well for thirteen days, and then bled most profusely; ligation of common carotid; paralysis of arm and leg of opposite side; ten days later paralysis much better, but patient lost consciousness and died with slight convulsion of paralysed side; hæmorrhagic pleurisy.

Kaplan (second case). Male, aged nineteen; tumour at angle of jaw; incised and pus found burrowing toward pharyngeal wall; same day cyanosis choking, tracheotomy, with temporary improvement; forty-eight hours later, sudden hæmorrhage from wound, nose and mouth; ligation of common carotid immediately checked it; patient regained consciousness, but soon became comatose and died; perforation found in internal carotid.

B. *Recoveries.*

Borbonne (incomplete report). Hæmorrhage the day following incision.

Chappell. Male, aged twenty-seven; hæmorrhage fourth day and recurrent, controlled by packing; no operation.

Gleitsmann. Male, aged twenty-four; hæmorrhage eighth day and recurrent; styptic packing controlled; no operation.

Schmiegelow. Male, aged thirty; hæmorrhage fourth day; ice, rest and morphine controlled probable lesion of a twig of the tonsillar or ascending pharyngeal artery.

Summary of Group 4: 8 cases; 4 fatalities and 4 recoveries.

As far as the reports show, all of the cases in the foregoing groups were quinsies. Additional cases have been reported which may be grouped as follows:

GROUP 5.—HÆMORRHAGE FOLLOWING RETRO-PHARYNGEAL ABSCESS.

Carmichel. Male, aged five weeks; immediate hæmorrhage following the opening of the abscess; no operation, death; abscess found to connect with posterior tonsillar cavity; bleeding from a branch of the external carotid.

Clutton. Male, aged twenty-eight; spontaneous opening of abscess, hæmorrhage immediate and recurrent; ligation of common carotid and of its external and internal branches; recovery. Blood thought to have come from the internal jugular vein; abscess appeared to focus above the right tonsil.

Erichsen (incomplete report). Phlegmon in pharynx discharged pure pus; on seventh day fatal bleeding from abscess cavity; autopsy revealed abscess bordering wall of internal carotid which had been perforated.

Franklin. Male, aged eight; spontaneous opening of abscess, no operation, recovery; pulsating swelling was evident on the outer side of neck; evidences of general sepsis; later subsidence of external swelling; aphonia not clearing up for several months, long and tedious convalescence; one year later slight weakness of arm and pes equino-varus; probable embolus of middle cerebral artery, a terminal branch of the internal carotid.

Chassaignac (incomplete report). Immediate hæmorrhage following incision; ligation of common carotid, recovery; probable false aneurysm, due to carotid erosion.

Summary of Group 5: 5 cases; 2 fatalities and 3 recoveries.

GROUP 6.—HÆMORRHAGE IN CONNECTION WITH SCARLATINAL SUPPURATION.

Immermann. Male, aged seventeen; spontaneous opening of abscess, sudden buccal hæmorrhage, no operation, death; deep tonsillar abscess found, which had perforated carotid; much blood in bronchi.

Pepper. Male, aged thirty; spontaneous opening; recurrent hæmorrhage; ligation common carotid artery; recovery. Blood regarded as having come from internal carotid; left vocal cord paralysed before operation.

Mahomed, in discussing Pepper's paper, reported six cases without particulars except that some were fatal. From lack of data these cases are not included in this summary.

Lyot and Petit. Female, aged nineteen; elastic swelling suddenly appeared

in left mastoid region, with systolic bruit; left tonsil pushed toward median line and compressible; puncture externally withdrew blood; spontaneous subsidence; no internal bleeding; recovery.

Summary of Group 6: 3 cases; 1 fatality, 2 recoveries.

GROUP 7.—HEMORRHAGES IN CONNECTION WITH GANGRENOUS TONSILLITIS.

Craigin. Male, aged forty-five; spontaneous opening and immediate hæmorrhage; no operation; death. Right tonsillar space and posterior pharyngeal wall showed partly detached slough, exposing open mouths of two small arteries; possibly twigs of ascending pharyngeal.

Terganowan. Male, aged twenty; spontaneous opening, two or three months after initial tonsillar symptoms; no operation; death from hæmorrhage. Autopsy showed complete destruction of parotid gland and gangrenous softening of entire circumference of external carotid, with fistulous opening into throat.

Summary of Group 7: 2 cases, both fatal.

Two other cases have been reported under the heading of hæmorrhage from circumtonsillar abscess, but they do not seem to the writer to belong to this category.

Wulf. Female, aged six; suspected aneurysm of internal carotid; pulsation stopped by compression of the external trunk; ligation of common trunk, with cessation of pulsation and bruit in pharynx; recovery; sac filled up with blood-clot, but later suppurated and puncture then gave fluid blood; eventual recovery.

Savory. Apparently a case of abscess in the neck involving internal structures, with external hæmorrhage; no operation, death.

Excluding the last two cases, we have, then, 51 well authenticated cases of hæmorrhage dependent on suppuration in connection with pharyngeal structures. Of this number 23 recovered and 28 died, a mortality rate of 54.8 per cent. These figures show the gravity of this complication. Sex is stated in 39, of which number 35 were males and 4 females. This fact is of no special significance, as circumtonsillar and other pharyngeal abscesses are more common in males. Age is given in 37 cases; 7 occurred in the first decade of life, 5 in the second, 18 in the third, 6 in the fourth, and 1 in the fifth. The maximum and minimum ages were 55 years and 5 weeks respectively.

Operations were performed as follows:

Ligation of the common carotid sixteen times, with eleven recoveries and five deaths.

Ligation of the external and internal carotid once, with recovery, and of all three, once with recovery.

Many interesting questions suggest themselves in connection

with this class of cases. We have time to consider but one or two of them.

The first relates to the invasion of arterial structures by suppurative processes. That this does happen is now universally believed, but we must remember that until comparatively recently it was a mooted point. It was but forty years ago that Bouehard observed that, while an artery in a purulent focus did sometimes rupture, he was not prepared to admit that the latter accident was referable to an ulceration in the proper sense of the latter term. In 1873 Cauchois stated that such rupture occurred as the result of the following pathological sequence:—1st, denudation of the artery by the destruction of the cellular wall; 2nd, suppurative inflammation of the external tunie; 3rd, dissociation and disappearance of the muscular fibres of the middle coat; and 4th, rupture of the external tunie. In 1878 Ehrmann called attention to the patient's general condition as bearing on vascular rupture in pharyngeal suppuration, but did not admit the existence of any diathetic condition as indispensable to the rupture. In 1882 Monod noted that one of the most constant effects of arterial inflammation was the disappearance of the muscular tunie. The muscular and elastic fibres, he says, give place to connective tissue, which often unites itself with that of the external tunie and the vegetations of the internal tunie. There results, consequently, a weakening of the vessel wall. Often the external tunie hypertrophies, and so supplements the deficiencies of the middle.

Now all these processes are apt to assume a peculiar virulency in the region under consideration, owing to its proximity to the air passages. The mouth is a hotbed of all sorts of bacterial life, and the parts are constantly flushed with the air of inspiration and expiration. Pus near the air passages rapidly decomposes. The foetid characteristics of mouth abscesses and their virulence are well known. Hence the pus and gas confined in the pharyngo-maxillary space cause a rapid death of the arterial wall before any compensating hypertrophy of the latter can be brought about by nature's conservative processes.

Granting the existence of a weakened vascular wall, we have further to recognise the presence, in some cases, of adjuvant causes of rupture, such as cough and violent muscular effort which momentarily increase the pressure in the vessel. These patients are especially liable to cough from the irritation of the initial blood which trickles down the pharynx, and a slight leakage may become a formidable rent. Another cause, following

now the incision of the abscess, is the sudden diminution of pressure on the outside of the vessel wall, produced by the accumulation of pus under pressure, which acts as an elastic cushion. The weakened vascular area is thus between the internal force of the blood-pressure and the external force of the pus sac. If the latter is suddenly lessened by incision the sudden unbalancing of pressure is too great for the further resistance of the weakened area, and it gives way. Here arises a point of great significance for the surgeon, for the hæmorrhage which immediately follows incision is apt to be referred by the patient or his friends to unskilful intervention. Such was the experience in the case reported in this paper. The patient had been having quinsies for over thirty years. They had been opened repeatedly. No hæmorrhage had followed. All this long time his habits in regard to consumption of alcohol, had been leading up to a condition of distinct arterio-sclerosis. In the last attack the vessel,—whichever one it was,—had become vulnerable, and when the escape of pus removed the counter-pressure on the vascular wall it gave way. In a sense, it is true, the surgeon does not cause the bleeding, but how much better that it should occur under such conditions than that the destruction of the vessel wall should increase in extent, and the rupture of the abscess come on at a time when no relief is at hand, and an immediately fatal hæmorrhage may follow. In those cases in which the bleeding has been controlled by various means we must assume the formation of a thrombus, which acts as a plug, and which later becomes organised, permanently stopping the leak.

Even in the case of an aneurysm (of which more later), if the opening is not large, it may be closed by a thrombus. At this stage, incision is far less dangerous, even if after the emptying of the abscess cavity, the thrombus becomes loosened and bleeding recurs. It is possible for the thrombus to involve the contents of the aneurysmal sac and become organised. Under these circumstances spontaneous healing occurs (case of Lyot and Petit). The chances of such a favourable outcome, however, are lessened if the thrombus is surrounded by pus. The occurrence of a false aneurysm depends also on the stability of the abscess wall. If it is friable and ruptures, probably a fatal hæmorrhage will occur. The same untoward result may also happen if the abscess has already opened before the arterial wall is perforated.

We have all opened many quinsies, and will open many more. We must not forget that some of the most severe, and even some

of the fatal, cases of hæmorrhage have come like the thunderclap out of the clear sky. Patients who have presented only the signs and symptoms of an ordinary quinsy, have died from this complication. Naturally, therefore, we are faced with this question: leaving out those cases in which a pharyngeal swelling with pulsation, bruit, etc., indicate the definite course to pursue, are there any signs or symptoms which will warn us that we are confronted with the gravest of dangers?; in other words, what quinsies are harmless, in this respect, and what potentially harmful? The matter of differential diagnosis has received the careful attention of Lebram. We are called on mainly to decide between three conditions: an inflammatory process, a tonsillar tumour with metastases in the cervical glands, and an aneurysm. Decision is further complicated by the fact that carotid aneurysm sometimes presents distinct evidences of inflammation, suggesting a quinsy. Certain aural lesions are accompanied by an extension of suppuration down into the circumtonsillar region. An abscess may form and a pulsation be communicated thereto by some neighbouring vessel, though the latter itself is intact. Syphilitic processes, with glandular involvement, rarely confuse us. The question then reverts to the possible injury of an artery. If an abscess has opened, has blood already appeared, or can clots be turned out of the cavity? Autopsies, in such cases, have shown that the blood may come from the internal carotid, a branch of the external carotid, the palatine branch of the ascending pharyngeal, the lingual or the inferior palatine branch of the facial. If incision evacuates clot and fluid blood escapes later in greater or less quantity we must regard it in the highest degree probable that we are dealing with hæmorrhage from the carotid which has led to the formation of a false aneurysm. Even with unruptured abscess wall inspection, palpation and auscultation would enable us to make a diagnosis if they were uniformly present, but, unfortunately, they are not, as the case of Fehleisen shows. Under such conditions, compression of the artery above and below the abscess, would make a difference in the latter's physical characteristics. It has been found that when inflammation develops over an aneurysm, pulsation and other usual features may be lacking. Under these circumstances we assume a partial or complete clotting of blood in the sac. The general feel of the parts would not differ from that of an abscess. We would look for a softness and indefinite fluctuation. Some cases of aneurysm have presented a tumour-like swelling of the cervical glands.

A point of anatomy mentioned by Chassaignac should be borne in mind. He notes that after middle life the internal carotid at this level, describes a curve, with its convexity directed inward (cf. the paper by Connal in the March number, 1908, of the *Journal of Laryngology* on "Abnormal Pulsating Vessels in the Pharynx").

Extra-cranial aneurysms of the carotid, of traumatic origin, are rare. Lebram found only three instances recorded.

Further factors to be taken into account are gout, arteriosclerosis, and lues, also the age of the patient. Growth of an aneurysm under these conditions, would be slow and gradual, while aneurysm caused by suppurative erosion develops rapidly.

Only 20 per cent. of aneurysms (as proven by autopsy) have been diagnosticated before intervention or rupture.

In regard to diagnosis of swellings, in this region, by the use of the exploring needle, we are left in doubt in cases in which the pus is thick or the swelling contains clotted blood. A suspicion of aneurysm would, of course, contra-indicate diagnosis by puncture. If a tumour has appeared in the neck a portion might be excised for submission to the microscope.

The brief notes following the cases reported above show that hæmorrhage has been checked by, or has followed the use of, ice, rest, morphine, packing, etc. Previous to opening a suspicious swelling the artery may be exposed as a provisional measure. Experience would seem to show that in these severe cases the safest plan is to ligate the common carotid. But rarely can we determine the bleeding-point. This fact is Clutton's justification for advising the ligation of the common carotid together with its two terminal branches. It may be asked, why ligate the common trunk and not the external branch? We find the latter sufficient in post-tonsillotomy hæmorrhages, but it must be remembered that in the latter emergency quite different local conditions prevail. Pepper states that the ascending pharyngeal, which undoubtedly is the source of the bleeding in some of the quinsy cases, comes off from the bifurcation of the carotid and ligation of the external branch would not therefore help us. The text-books on anatomy, however, state that the origin of the artery is not at the bifurcation, but half an inch above. Moreover, ligation of this external branch would lead us into sloughing tissue. We are here in a very different environment from that of the non-suppurating tissue of an ordinary tonsillar hæmorrhage. Pitts declares that ligation of the common trunk alone is not safe, as

anastomosis is very common through the branches of the external branch. Morris expresses considerable doubt as to the possibility of an anastomosing flow through the arteries within the skull ever reaching down as low as the origin of the internal carotid in the neck. While traumatic hæmorrhage in this region generally involves the external carotid or ascending pharyngeal, a large repeated hæmorrhage, secondary to suppuration, is far more likely to involve the internal carotid. Under these circumstances, if Morris is right, ligation of both common and external trunks would prevent returning hæmorrhage. The dangers of ligation of the common trunk are not to be under-estimated, but this factor relates to the casuistry of general surgery, and need not be discussed here.

REFERENCES.

- Bobone, *Boll. delle Malat. dell' Orecchio*, No. 10, 1905.
 Bourguet, *Gaz. d. Hôpitaux*, 1875, p. 873.
 Breton, "De quelques Complications rares de l'Amygdalite phlegmoneuse," *Thèse de Paris*, 1883.
 Brewer, *Yale Med. Journ.*, vol. v, 1898-99, p. 88.
 Carmichel, *Edinburgh Med. Journ.*, July, 1881, p. 281.
 Caytan, *Journ. de Méd. de Bruxelles*, October 1860.
 Chappell, *Trans. Amer. Laryngolog. Assoc.*, 1900, p. 213.
 Chassaignac, *Bull. de la Soc. de Chirurg.*, Aug. 31st, 1859.
 Clayton, mentioned by Chappell.
 Clutton, *Brit. Med. Journ.*, 1897, i, p. 1348.
 Craig, *New York Med. Journ.*, vol. xlviii, 1888, p. 233.
 Duke, *Lancet*, 1848, i, p. 233.
 Dunn, *Amer. Journ. Med. Sci.*, Sept., 1891, vii, 327.
 Ehrmann, *Bull. de la Soc. de Chirurg.*, t. iv, 1888.
 Erichsen, *Science and Art of Surgery*, London, 1870.
 Fehleisen, *Deut. Zeitschr. f. Chirurg.*, Bd. xiv, 1881, s. 1.
 Franklin, *New York Med. News*, vol. lxxii, 1898, p. 237.
 Gleitsmann, *New York Med. Monatsschr.*, Bd. i, Dec., 1889, p. 652.
 Grisolle, *Traité de Path. interne*, 1852, p. 200.
 Hall, *Boston Med. and Surg. Journ.*, vol. cxvii, 1887, p. 604.
 Immermann, *Bull. de la Soc. de Chirurg.*, 1878, p. 666.
 Kaplan, *Rousky Vrach*, Dec. 23rd, 1906, No. 51.
 Lebram, *Zeitschr. f. Ohrenheil.*, Bd. li, 1905-6, s. 1.
 Lefort, mentioned by Breton.
 Liston, mentioned by Fehleisen.
 Long, cf. *Sajous' Universal Annual Med. Sci.*, vol. iii, 1888, p. 289.
 Luke, mentioned by Chappell.
 Lyot and Petit, mentioned by Werner.
 Macgregor, mentioned by Monod.
 Mahomed, *Lancet*, 1882, ii, p. 775.
 Marotte, *Bull. de Thérapie*, t. lxxviii, 1875, p. 385.
 Méry, *Bull. de la Soc. de Chirurg.*, t. ii, 1870, p. 232.

- Messiter, *Lancet*, Jan. 13th, 1883.
 Moizard, *Journ. de Med. et Chirurg. prat.*, t. lvii, 1886, p. 347.
 Monod, *Bull. de la Soc. de Chirurg.*, Oct. 25th, 1882.
 Müller, *Med. Correspondenz blatt*, v, Würtemberg, 1855.
 Norton, *The Throat and Larynx*, London, 1875, p. 12.
 Pepper, *Brit. Med. Journ.*, Nov. 4th, 1882, p. 892.
 Pircher, mentioned by Werner.
 Pitts, *St. Thomas's Hospital Reports*, vol. xii, 1892, p. 131.
 Postempski, *Gaz. Med. di Roma*, vol. xiii, 1887, p. 73.
 Reeves, mentioned by Chappell.
 Savory, *Brit. Med. Journ.*, 1880, Oct. 30th, p. 706.
 Schmiegelow, cf. *Centralblatt f. Laryngol.*, Bd. xvii, 1901, s. 594.
 Stonpy, *Arch. de Méd. Militaire*, September, 1896, p. 317.
 Terganowan, *Transac. New Jersey State Med. Soc.*, 1874, p. 195.
 Veillard, *Arch. Internat. de Laryngol.*, vol. xiv, 1901, p. 179.
 Vergeley, *Journ. de Méd. de Bordeaux*, t. xv, 1885-86, p. 545.
 Walker, mentioned by Chappell.
 Watson, mentioned by Chappell.
 Weinlechner, *Wien. Med. Blätter*, Bd. xvii, 1885, No. 53.
 Werner, *Deut. Zeitschrift. f. Chirurg.*, Bd. 67, 1902, s. 591.
 Wulf, *Münch. Med. Wochenschrift*, Bd. xlvii, 190, s. 687.
 Zarfoljian, "Les Complications des Abscès Amygdaliens," *Thèse de Bordeaux*, 1903.

THE CLINICAL PATHOLOGY OF AURAL DISCHARGES.¹

By WYATT WINGRAVE, M.D.

DIVISION OF SUBJECT.

GROSS CHARACTERS OF DISCHARGES :

Fætor, colour, density.

TECHNICAL :

Collection, fixing, and staining.

COMPOSITION :

Cells.—Epithelium; leucocytes and lymphocytes; epithelioid; myelocytes, etc.

Bacteria.

Matric.

SUMMARY OF DIFFERENT TYPES.

Can any information of real clinical value be obtained by examining an ear discharge? is a very familiar question.

In 1883 Eschle (5) demonstrated the presence of tubercle

¹ A paper read before the Otological Section of the Royal Society of Medicine May 2, 1908.

bacilli in aural discharge. The correctness of his observation has since been proved by many observers. In 1893 McEwen (13) emphasised the importance of a microscopic examination of aural discharges. Five years ago I was privileged to draw your attention to the cytological aspect of aural discharges with special reference to the presence of acid-fast bacteria (34). I have uninterruptedly continued the research, and now venture to briefly summarise the conclusions in the hope that, supplemented by your experience and criticism, they may help to supply an affirmative answer to the question.

I propose to deal first with the different histological and bacterial elements which are usually found in aural discharges, together with the technical details necessary for their recognition; afterwards to consider the specific characters of the discharge in each variety of disease, with their diagnostic significance. To be of real diagnostic value the specimen must always be obtained from the nearest available point to its source, since it is practically useless to take an antro-tympanic discharge from the meatal aperture, where it is exposed to a wide range of contamination, including the epithelial products of that region.

In collecting material, whether for films or cultures, the following precautions should therefore be taken :

- (1) It should be obtained from a point nearest to its probable source.
- (2) All contaminations should be avoided, and every instrument should be sterilised.
- (3) Its fœtor, density, and colour should be carefully observed.

With regard to *fœtor*, the butyric type, which is perhaps most frequently found, is commonly associated with epidermal decomposition such as ungual accumulation and smegma, or with over-ripe cheese. It is doubtless due to changes occurring in epidermal cells in the presence of *Bacillus butyricus*. In aural discharge it is unmistakable and characteristic of a desquamative process, either meatal or antro-tympanic. That it is closely associated with putrefactive bacteria is supported by the fact that sterile cholesteatomata are free from fœtor. Sometimes it has the character of sulphuretted hydrogen, probably derived from the sulphur of the keratin scales. When osseous necrosis or caries exist a phosphuretted smell is observed, especially in the presence of *Bacillus proteus vulgaris*. Fœtor is rare in the acute forms of aural discharge, but in the chronic it is intimately associated with spirochaetes, *Bacillus*

butyricus, *Bacillus proteus vulgaris*, streptothrix, and various anaërobic bacteria (22).

Density is a feature which may afford valuable information. If serous or "watery" and continuous in flow it is strongly suggestive of cerebro-spinal fluid, confirmed by its affording positive evidence of reducing power with deficiency or absence of proteids. If scanty and mixed with flakes it is probably tuberculous or eczematous. In acute exudative processes it may be viscid, glairy or coagulated, according to the nature and intensity of the infection. In chronic cases it may vary from a thin "milky" to a "creamy" or even caseous consistence. It may also be dry and "scaly."

Its *colour* may be of great variety. In all forms the discharge may be mixed with fresh blood. Should this occur in chronic cases it is strongly suggestive of active granulations and polypi; but when the hæmorrhage is retained it may be "rusty" and resemble coffee or "anchovy sauce." The latter colour occurs in connection with malignant disease, while the rusty or coffee colour may be due to cerumen. Many chromogenic bacteria may be responsible for remarkable tints in chronic cases, such as the *Bacillus pyocyaneus* and *Micrococcus caruleus*. Black or grey granules may be due to aspergillosis, but are far more frequently caused by lead, bismuth and other salts which have been used for instillation or insufflation.

Collection of Material.—The patient should be placed in the usual position for examination alongside a good light. Guided by a speculum, the meatus being carefully cleared of accumulation, a head of pus is removed from the region nearest to the seat of the disease by a small eurette or platinum loop, taking care to avoid contact with any other surface and not to cause bleeding. The drop should be at once transferred to a clean cover-glass, over which another one is placed, then lightly pressed together and separated by sliding. (If separated by *lifting*, the film will be rough or "tacky" and useless for staining.) The film should at once be dried and fixed, either by hot air (not in contact with flame) or by plunging into acid alcohol or perchloride of mercury solution, afterwards washed and dried. Should the discharge be plentiful it may be collected by a suction pipette of small calibre and then transferred to cover-glass; but if examination is deferred, or if to be sent by post, its end should be sealed in the gas flame. Fixing by perchloride is really only necessary when eosin or resuvin is used in staining. Cover-glasses are preferable to slides, being far more convenient for manipulation. At least four films should

be prepared, while an extra one may be examined "wet" for motile bacteria. A culture may be taken with similar precautions, substituting a fine platinum wire for the curette. It need scarcely be accentuated that everything used should be scrupulously sterilised, and the film must on no account come in contact with a flame for fear of scorching. When antiseptics have been employed and a culture is required, it is better to postpone taking the specimen pending twenty four hours' suspension of treatment.

Staining.—If the staining is to be done by the aid of heat it is better to use a short wide test tube; but if cold, shallow glass dishes are more convenient than watch-glasses. The simplest and most comprehensive staining processes are the following:

(1) Gram's stain—

- (a) One per cent. gentian aniline violet in aniline water, three minutes. Wash in water.
 - (b) Solution of potassium iodide and iodine, half a minute or until of a dark violet colour.
 - (c) Wash in alcohol until no violet comes away.
 - (d) Counter-stain half film in weak carbol fuchsin.
- Wash, dry and mount in xylol balsam.

This is an important test, since it at once decides to which group the bacteria belong, Gram + or Gram —

(2) For tubercle, acid-fast bacilli, and squames. Carbol fuchsin and methylene blue (Loeffler), using 24 per cent. sulphuric acid for decolourising, followed by alcohol. Wash, dry and mount in xylol balsam.

(3) General stain for all bacteria and cells —

- (a) One per cent. solution of gentian aniline violet in aniline water for three minutes and wash.
- (b) One per cent. methylene blue ("medicinally pure" or "monochromatic") in 0.5 per cent. solution of borax ("borax blue") for three minutes, wash in water; dry and mount in xylol balsam.

These three stains are generally quite sufficient to obtain all information, yet if No. 3 should prove too deep for the cells use basic fuchsin (1 per cent.) or carbol fuchsin in place of the gentian aniline violet. This stains the cytoplasm a beautiful scarlet, in which the bacteria and nuclei will be well seen when counter-stained with borax blue. It also demonstrates sporulation. Either method affords a most useful combination if carefully carried out, and no one who has been accustomed to work only with nuclear stains can fail to appreciate the beauties revealed by employing a

protoplasmic contrast stain. It is most searching for bacteria when used its full strength and time, but for cytology it is better when diluted 3:1 and with a shortened contact. Solutions must be fresh and filtered. Distilled water only should be employed.

Examination.—This should first be done with a 1 in. or $\frac{1}{2}$ in. lens, which will give a general idea of the larger cells, to be followed by a $\frac{1}{12}$ immersion lens for cytological details and bacteria.

COMPOSITION.

A discharge usually consists of three elements: (1) cells; (2) bacteria; (3) matrix or suspending fluid.

Cytology.—The cells may be divided into two groups: (A) epithelial, and (B) mesoblastic.

(A) *Epithelium.*—Epithelial cells are meatal, tympanic and glandular. The commonest type is the squame, which in the healthy state is strictly confined to the meatus, but in chronic disease invades the antro-tympanic cavity and becomes one of the most striking features of discharge from that region. They are of two distinct kinds—old and young. The old ones stain deeply with fuchsin and resist decolorising with acid. They are, in fact, acid-fast like tubercle bacilli, their nuclei are wanting or only indicated by a pink area (ghosts). Young or recently formed ones are readily decolorised with acid, and their large oval and round nuclei stain deeply with blue. There are also intermediate varieties whose cytoplasm contains keratin granules which stain violet by Gram and whose nuclei take a faint blue.

This acid-fast property of old non-nucleated squames is one of considerable interest, since it affords not only presumptive evidence of a cholesteatomatous process involving the antro-tympanic cavity—assuming that the specimen was taken from an adjacent spot and not from the meatus—but fragments might easily be mistaken for tubercle bacilli by a careless observer.¹ When taken from the meatus in large numbers they indicate the existence of chronic desquamation, with or without leucocytes. The blue staining nucleated squames indicate recent or existing desquamation.

¹ It is very important to bear in mind this acid-fast property of epithelial squames, since it may lead an inexperienced observer when searching for tubercle bacilli to think that the film is insufficiently decolorised and induce him to prolong the acid and alcohol bath until the fuchsin is either entirely removed from the tubercle bacilli or rendered so faint as to be neutralised by the methylene blue in counter-staining.

Tympanic Epithelium.—Normal tympanic epithelium is *only* seen in acute cases. It appears as solitary or grouped spheroidal, cubical and pyriform cells, having a pale clear cytoplasm with a well-defined blue oval or round nucleus, often eccentrically situated. Such epithelium does not appear in chronic discharges, the tympanic lining having become transformed into the squamous or epidermal type.

Gland Epithelium.—Gland epithelium likewise is rarely seen, except in acute cases, and is mostly of meatal origin, since glands are scarce in the middle ear. The cells are variable in size and shape, but can be recognised by a single oval nucleus and slightly oxyphile or yellowish cytoplasm, sometimes staining deeply.

The recognition of neoplastic characters is very difficult, but whenever cells are found in closely-packed groups and their nuclei are heteromitotic they should always excite suspicion, especially when associated with myeline spheres and red blood-corpuscles.

It will thus be seen that cells may be living or dead, a distinction equally applicable to the mesoblastic group and equally important, since it enables one to determine whether the cells are of recent or relatively remote origin.

(B) *Mesoblastic Cells.*—Mesoblastic cells may be conveniently, yet perhaps somewhat arbitrarily, divided into two groups—wandering and fixed.

The *wandering* cells are leucocytes and lymphocytes. *Fixed* cells are mesothelial (endothelial and perithelial), giant-cells and myelocytes. There are also many other, such as plasma-cells, fibroblasts, angioblasts, etc., but their histological distinctions are so undecided that for the present it will be expedient to confine our attention to those whose identity and source can be readily established.

Leucocytes and *lymphocytes* are generally referred to by the comprehensive term "pus cells," but clinical cytology teaches that some discrimination is necessary, since they are unlike one another in structure, function and significance. Whatever views may be held regarding their biological relations, their recognition and differentiation in a discharge are of no slight importance. A fresh *leucocyte* is somewhat larger than a lymphocyte, it possesses a relatively greater area of cytoplasm, which is always granular, the granules being termed oxyphile, basophile, or neutrophile, according to their selection of acid, basic or neutral stains, a distinction of importance as blood-corpuscles, but of less value when they occur in a discharge. The nucleus occupies a relatively small part of

the whole cell and may be multiple or single: the "polymorphs" are the more prominent in acute discharges, while the mononuclear are present in chronic or the later stages of acute diseases.

The leucocyte of a recent or acute exudate is very sharply defined and the nucleus stains deeply: but it soon degenerates, the outline of the cytoplasm is lost, and the nucleus either stains faintly, becomes distorted, or undergoes fragmentation into "myeline" spheres (pyknosis), which may either remain in the cloudy cell, become absorbed by another cell, or escape into the surrounding matrix, a series of changes which indicate its death. One can thus easily distinguish between the living or active and the dead or degenerated stage. As the discharge becomes chronic large mononuclear leucocytes are much more numerous, a characteristic feature of granulating wounds which distinguishes it from the earlier and more exudative process. Their cytoplasm is very granular and stains deeply with gentian violet or fuchsin, while their nuclei are paler than those of polymorphs and more irregular than those of endothelial cells, which possess a very clear cytoplasm.¹

Each variety of leucocyte may be a phagocyte, a property which can be best demonstrated by means of the fuchsin and borax blue stain. Weak solutions and short exposure are essential since, if over-stained, the cytoplasmic granules obscure the engulfed bacteria.

The *lymphocyte* is smaller than the leucocyte; its cytoplasm is scanty, often invisible, or appearing simply as a narrow zone, which is clear when living but becomes faintly granular with degeneration. The nucleus is relatively large, single, round, and stains very deeply with borax blue or gentian violet. In acute exudative changes about one lymphocyte can be counted to twenty or thirty leucocytes, but when the discharge comes from a "granulation" source the lymphocytes are strikingly increased, sometimes being equal in number to the leucocytes.² Thus the presence and pro-

¹ All cells in a film appear larger than when seen in section, because being soft spheres they are more or less flattened in the act of preparation by pressure, however slight.

² It must not be forgotten that lymphocytes are much more numerous in infants' than in adults' blood. They are consequently, therefore, often relatively more numerous in the acute suppuration of children. Whether lymphocytes of a discharge are derived from the blood or from the lymph is a debatable point. According to Maximow (9) they may be derived from the lymphoid cells of bone-marrow, and, growing larger, may become phagocytes. Lymphocytes are also said to become plasma cells in chronic inflammatory processes. Like leucocytes, their nuclei, when old, become paler in staining power.

portion of these cells afford reliable evidence of the existence of granulation tissue and the nature of the pus-producing process. They possess little, if any, power of phagocytosis.

Mesothelial or Epithelioid Cells.—Of the *fixed* cells epithelioid elements are those most frequently found. The name mesothelium includes endothelial and perithelial elements, since in a discharge it is impossible and immaterial to distinguish one from the other. They are derived from the lining of blood and lymph channels, also from the peri-vascular spaces of arterioles. They play a prominent and important part in all granulomatous formations, especially that of tubercle, lupus, and lymphadenoma, since the greater part of a typical tubercle is composed of them. They are recognised by their large size (nearly twice that of a leucocyte), irregularity in shape, large pale oval nucleus and an extensive clear cytoplasm, which on degeneration becomes granular or cloudy. Although sometimes seen in acute inflammation, their presence in large numbers is strongly suggestive of tuberculosis. They are usually credited with being "cell eaters," but may sometimes contain bacteria; they are, however, less phagocytic than leucocytes, although nuclear fragments of other cells are often seen inside them. It is probably from these cells that "giant cells" are formed, either by nuclear division or fusion.

Myelocytes.—Several kinds of myelocytes are seen in aural discharges, but they may be conveniently divided into two, viz. small mononucleated and large multinucleated. The first variety is difficult to distinguish from a large lympho- or leucocyte; it is, however, somewhat larger, its cytoplasm is clear and more extensive, while the nucleus is single, round, eccentrically situated and larger than that of a lymphocyte. The multinucleated has two or more closely packed nuclei and the cell is two or three times larger than the mononucleated. They are both derived from the red marrow and may sometimes be seen in both acute and chronic inflammation of diploic bone. In cases of primary acute osteo-myelitis they are sometimes very numerous, in chronic forms much fewer, the small variety being a striking feature in acute osteo-myelitis, while the large multinucleated form occurs chiefly in slower osteoporotic processes, when it is referred to as an osteoclast. In the course of acute infection the thin cytoplasm may contain neutrophile granules.

Erythroblasts.—A much smaller form (erythroblast), whose cytoplasm stains brilliantly with eosin, is not uncommonly found in acute osteo-myelitis of infants.

Giant-cells" differ from multinucleated myelocytes by the arrangement of their nuclei, which are generally oval, more numerous and grouped symmetrically round the periphery of the cell, while the nuclei of myelocytes are generally round, fewer in number and crowded together in the centre. They are rarely met with in discharge unless the tuberculous process is in a state of acute exacerbation and rapidly breaking down owing to a supplemental infection. In scrapings taken directly from the diseased spot and ground up with normal saline solution they constitute a striking feature in the film when stained with thionin and eosin.

(*To be continued.*)

SOME REMARKS ON KERATOSIS LARYNGIS CIRCUMSCRIPTA, WITH NOTES ON A CASE.

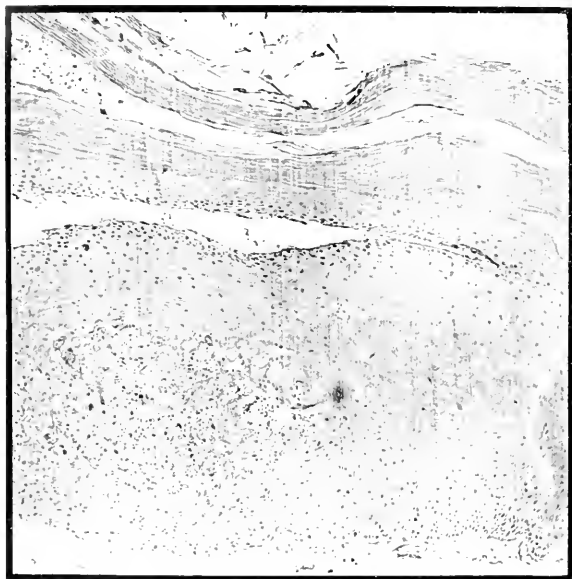
By W. G. PORTER, M.B., B.Sc., F.R.C.S. Ed.,

Surgeon to the Eye, Ear, and Throat Infirmary, Edinburgh.

KERATOSIS of the larynx is a condition of such extreme rarity that it is desirable to record any example of this disease which may come under observation.

CASE.—The patient, C. M—, æt. 23, tailoress, presented herself at the Ear and Throat Infirmary complaining of hoarseness. The condition had lasted for six months, had come on gradually, and was not associated with any other symptom. The hoarseness varied in degree, and increased very considerably when the voice was used to any extent.

The patient was a well-built young woman of healthy appearance. The nose, naso-pharynx, and pharynx showed no morbid appearances. On examination of the larynx the anterior two thirds of the left vocal cord appeared to be covered by a greyish-white membrane, the surface of which was somewhat crinkled. It projected slightly beyond the free edge of the cord, and externally was lost to view within the sinus of Morgagni. On phonation the cords moved freely, but did not adduct perfectly, there being a slight degree of elliptical paresis; it was thought, however, that this was partly to be accounted for by the mechanical interference of the membrane. The right and the exposed portion of the left cord were slightly congested; the remainder of the larynx appeared healthy.



$\times 60$ diam.

TO ILLUSTRATE A PAPER BY MR. W. G. PORTER ON "SOME REMARKS ON KERATOSIS LARYNGIS CIRCUMSCRIPTA, WITH NOTES ON A CASE."

On first examination this apparent membrane was taken to be dried secretion, possibly due to a limited laryngitis sicca, but against this was the fact that the patient had never coughed up any particles, nor could she by any forced coughing even after inhalations of steam succeed in getting rid of the supposed secretion. After further observation extending over a fortnight, during which no change took place in the condition, it occurred to me that it might be a case of keratosis, and this view proved to be correct on microscopic examination.

I removed the greater part of the tissue with forceps under cocaine anæsthesia. It is worthy of note that after seizing the tissue a very distinct tug had to be given in order to withdraw the forceps, and that, although there was no blood on the latter, the cord showed a hemorrhagic stain on the surface when examined immediately after the manipulation. This showed that the tissue was intimately connected with the cord itself. The fragments were imbedded in paraffin, and after cutting, the sections were stained with hæmatin and picrofuchsin. They showed towards the surface a layer of cornified epithelial cells appearing as long fibres, stained yellow, some of which were broken and curled up. Below this was a thick layer of more columnar shaped and squamous epithelial cells, some of which were becoming cornified. This is well seen in the accompanying micro-photograph made from one of my sections by Mr. Richard Muir.

The removal of this tissue combined with voice rest and inhalations of menthol had a very beneficial effect, and four weeks later the hoarseness had completely disappeared. There was no return of the keratosis.

Remarks.—I have been able to find in the literature only seven examples of this interesting condition reported by Juffinger, O. Chiari, Fein (two cases), Logan Turner, Henke, and Baumgarten, Juffinger being the first to describe and name the disease. For the sake of comparison I tabulate these observations below.

It will be seen by glancing at the table that either sex may be affected and that the disease has a wide age distribution—thirteen to sixty-six—in the recorded cases. The onset is slow—six weeks to seven years,—and only one symptom—hoarseness—was complained of by the majority of the patients. In one case (Logan Turner) pain was also present, while in Fein's second case breathlessness and cough were prominent. The patient in the latter, however, was stated to have a "catarrh" of the right apex, which may explain the last two symptoms.

The appearances observed are usually of a patch or of patches, chalky or snowy white in colour, with a rough surface frequently presenting a number of fine spicules. They are generally situated on one or both cords, and are then sometimes comparable to a pseudo membrane such as is seen after the use of the cautery (Fein). They occasionally also appeared as rounded swellings below the cord (Juffinger, O. Chiari). In one case the colour was stated to be greenish-white (Turner), while in my own case it was rather a greyish-white, and had exactly the appearance of dried secretion. In no case was there keratosis present in the pharynx. The microscopic appearances were similar in all the cases, and have been described above.

Treatment seems to have been of value in those cases where the overgrowth had been mechanically removed. This would appear to be the most rational method to adopt when the affected area is sufficiently small to make it practicable. In Chiari's and my own case no return was observed after removal, though in the latter it was too recently carried out to permit of an absolute statement to that effect. Chiari mentions that his patient used inhalations of salt solution for a long time, while my patient employed inhalations of menthol combined with voice rest. In Fein's first case there was a return on two occasions, and he finally obtained a cure by painting the parts with a 10 per cent. alcoholic solution of salicylic acid. He had no returns in his second case, in which he commenced this treatment immediately after removal. Baumgarten also used similar measures with success.

There are not sufficient data to enable us to draw any conclusions as to the aetiology of this affection.

I must finally mention a case illustrated by Krieg¹ in his atlas which very closely resembles the description given of certain of the published cases of keratosis, but which Krieg has named *verrucosa dura* of the left vocal cord. The patient was a male, *act.* 60, who complained of hoarseness of a year's duration, and of slight breathlessness. In the larynx a chalky white mass with sharp projections on it was seen on the left vocal cord. The patient died two years after he first came under observation, and at the section the right ventricle of Morgagni was found to be filled with a crumbly yellow mass adherent to the surface of the cord; the mass consisted of horny epithelium. On its removal the cord was seen to be eroded, and on microscopic examination there was found a round-celled infiltration, while the very exuberant mucosa was formed of high

¹ Krieg, "Atlas der Kehlkopfkrankheiten," Stuttgart, 1892.

TABLE OF CASES OF KERATOSIS.

Author.	Sex of patient.	Age.	Complaint and duration.	Distribution.	Macroscopic appearance.	Remarks.
Jadlenger, <i>Wien. klin. Wchschr.</i> , 1891, iv, 875	F.	46	Hoarseness 2½ years	Swelling below anterior commissure	Numerous layers of corni- fied epithelium	Also suffered from ozaena
O. Chiari, <i>Prag. med. Wchschr.</i> , 1895, xx, 3	F.	25	Hoarseness 7 years	Anterior parts of both vocal cords; also below anterior commissure	Parallel homogeneous fibres cornified	Also suffered from pharyngitis sicca and rhinitis atrophicans.
Fein, <i>Monatssch. f. Ohrenh.</i> , 1903, xxxvii, 327	M.	66	Hoarseness 6 weeks	Anterior half left vocal cord	Cornified epithelium, deeper pavement	Leucoplakia of tongue and buccal mucosa.
Ditto, ditto	M.	46	Hoarseness, breathlessness, cough	Middle left vocal cord	Ditto	"Catarrh" right apex.
Logan Turner, <i>Edin. Med. Journ.</i> , 1906, August, 344	M.	64	Hoarseness, pain, 1 year	Whole of right vocal cord and false cord; anterior two thirds left vocal cord	Layers of cornified epi- thelium	
Baumgarten, <i>Centralbl. f. Laryng.</i> , 1905, xxi, 33	M.	—	Hoarseness 1 year	Laryngeal aspect of epi- glottis, true and false cords, and below true cords	Fibrous masses and horny layer	—
Henke, <i>Centralbl. f. Laryng.</i> , 1905, xxi, 189	F.	43	Hoarseness 6 years	Both vocal cords	—	Psoriasis universalis of skin.
Porter	F.	23	Hoarseness 6 months	Anterior third left vocal cord	Layers of cornified epi- thelium and squamous cells	—

papillae closely packed together, whose epithelial covering had become cornified; one place in the middle of the cord showed a commencing atypical formation of epithelium.

This case, if it was an example of keratosis, is of special importance as being the only one in which a complete microscopic examination has been made. I have very little doubt that it should be classified among the cases of keratosis, and it is more than likely from the date of its publication—1892—that Krieg did not know of Juffinger's paper.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE—LARYNGOLOGICAL SECTION.

Seventh Ordinary Meeting, May 1, 1908.

J. B. BALL, M.D., *President, in the Chair.*

Abstract of Proceedings by DR. DAN MCKENZIE.

THE following cases and specimens were exhibited:

STEREOSCOPIC PHOTOGRAPHS OF PATIENTS OPERATED ON BY VARIOUS METHODS FOR FRONTAL SINUS DISEASE, INCLUDING ONE TO SHOW THE EFFECT OF THE INJECTION OF PARAFFIN FOR THE PURPOSE OF REMEDYING THE RESULTING DEFORMITY.

BY DR. W. S. SYME.

SPECIMENS FROM CASES OF SARCOMA AND CASES SIMULATING SARCOMA IN THE UPPER AIR-PASSAGES.

BY DR. JOHNSON HORNE.

(1) A section of a growth from the outer side of the nose, and near the inner canthus of the eye, reported to be histologically a fibro-sarcoma. After removal there was no recurrence of the growth, and the case was clinically an innocent tumour.

(2) A section of a vascular growth removed from the anterior part of the cartilaginous septum of a girl, aged sixteen. The clinical facts suggested sarcoma, but on removal microscopical examination showed the growth to be innocent (bleeding polypus).

(3) A section of an intra-nasal growth. Endothelioma (alveolar sarcoma).

(4), (5), (6), and (7) Sections of fibro-angiomas removed from the naso-pharynx.

(8) A section of a mixed-cell sarcoma of the larynx.

(9) Endothelioma (alveolar sarcoma) of the larynx (extrinsic). The growth remained localised. The patient died from bronchopneumonia. *Post-mortem* no glandular involvement was found.

Dr. JOSEPH HORNE said he had exhibited these specimens to illustrate that sarcoma of the upper air-passages was diagnosed both clinically and microscopically oftener than it really existed. This series was of particular value as throwing light upon certain cases recently shown at this Section.

A CASE OF MUCOCELE OF THE ANTERIOR ETHMOIDAL CELL OF THE LEFT SIDE OF THE NOSE WHICH HAS BEEN OPENED FROM THE NOSE.

BY DR. DAX MCKENZIE.

The patient, a man, aged about thirty-five, first noticed a swelling at the inner side of the left orbit fourteen months ago. Seeking relief at the Royal Ophthalmic Hospital he was admitted as an in-patient, and kept under observation for ten days. The nasal duct was explored under chloroform, but nothing in the way of active interference with the tumour was undertaken. Nevertheless the swelling gradually subsided and remained absent for a year. Ten days ago it again appeared, the patient awaking one morning to find the tumour. He returned to the Royal Ophthalmic Hospital, and was referred to the Central London Throat and Ear Hospital, where he came under the exhibitor's care. On examination a small bulging was felt over the situation of the left lachrymal bone, tense and cystic in character. The eyeball was displaced slightly outward, but there was no diplopia, although the patient stated that it had been present at an earlier date. Anterior rhinoscopy showed a bulging in the region of the middle turbinal. This proved to be the nasal segment of the cyst. The anterior wall was broken down by Grünwald's forceps and snared so as to open the cyst freely. The contents consisted mainly of

mucus, with a few leucocytes. The wall of the cyst was composed of thin bone lined with flattened spheroidal epithelium (Wyatt Wingrave). After evacuation bi-digital examination showed that the bone of the inner wall of the orbit had undergone pressure-atrophy, leaving a circular, smooth-edged hiatus about 1 cm. in diameter. Through this hiatus the cyst bulged, and, according as it filled and emptied, appeared and disappeared as an orbital tumour.

Dr. DUNDAS GRANT said he had seen the case before treatment, and congratulated Dr. McKenzie upon the good result, which showed the advantage of intra-nasal operation.

Mr. W. H. KELSON asked where the purulent discharge in the nose was coming from.

Dr. DAN MCKENZIE, in reply, said he wished to acknowledge his indebtedness to Dr. Grant, who had put him right upon the character of the bulging in the lateral wall of the nose. This, which was really the anterior lip of the hiatus, the speaker had mistaken for the middle turbinal itself. In reply to Mr. Kelson, he said he did not think there was any ethmoidal cell suppuration: probably the discharge came from the interior of the cyst, part of the floor of which had been left for exhibition purposes, but would now be thoroughly removed.

A CASE OF LARGE POST-NASAL POLYPUS SIMULATING A NASOPHARYNGEAL FIBROMA, GROWING FROM THE ANTRUM OF HIGMORE.

BY DR. DUNDAS GRANT.

The patient complained of complete left nasal obstruction. Posterior rhinoscopy revealed a smooth, pink, rounded tumour occupying the whole naso-pharynx; on palpation it was firm in consistence and could be traced to the back of the left choana. On rapid palpation it appeared to be adherent to the internal pterygoid plate, but its more complete examination was deferred until a general anæsthetic was administered. It was then possible to push the tip of the left index finger between the growth and pterygoid plate, and to feel the edge of what appeared to be an orifice in the bone opening into the antrum. The little finger, introduced through the anterior nares, could distinctly touch the anterior margin of such orifice, the inferior turbinated body having either shrunk or been displaced upwards. An écraseur with a very coarse wire was introduced through the nostril into the naso-pharynx, and the tumour was guided into the loop by means of the index finger; this was tightened up to such an extent as to grip the tumour near its site of origin without cutting it through; it was then forcibly

evulsed, bringing with it an elongated peduncle. On palpation the orifice leading into the antrum was now unmistakable; a curved curette was introduced into it through the anterior naris, and as complete scraping as was possible was carried out. Should recurrence take place, Dr. Grant proposed that the antrum of Highmore should be opened, if possible by enlargement of the existing orifice, or else through the canine fossa. This case is an addition to the series of similar cases already exhibited by Dr. Fitzgerald Powell, Dr. Tilley, and Dr. Dundas Grant.

Dr. McBRIDE asked if the tumour really came from the antrum, since it resembled in some respects a tumour removed by him in which a cleft or bilobate appearance was seen. Killian and another author said these growths proceeded from the antrum; another author, an American, had described how he had actually opened the antrum and had seen the polypus. Perhaps in this case there was more assumption from the length of the pedicle than actual demonstration that the polypus was rooted in the antrum.

Mr. FITZGERALD POWELL thought that this was an ordinary mucous polypus. It was difficult to understand how a soft growth of this kind growing in the antrum could exercise sufficient pressure to lead to absorption of the inner wall. He himself had once seen a fibroma which, growing in the nose, had penetrated the antral wall, but this was not a mucous polypus.

The PRESIDENT reminded the Section that these large solitary polypi do grow from the antrum. He had often noticed with surprise when these tumours were removed by pulling how long the pedicles were. Doubtless their being rooted in the antrum was the explanation.

Dr. STCLAIR THOMSON had gone over Zuckerkandl's preparations along with Dr. von Eicken, Killian's assistant, while they were at the Congress in Vienna last month. There he had seen a skull cut so as to show the antrum on one side of the section and the polypus on the other. These polypi grow from the ostium or close to it.

Mr. STUART-LOW had asked Killian his opinion on these cases, and he had said that they came through the ostium "as babies," and became fully developed afterwards.

Mr. CLAYTON FOX had had a case in which the pedicle was clearly and definitely growing from the antrum. He made out that it emerged from an opening about 1 cm. in diameter, occupying a position behind and below the natural ostium. When the polypus was removed a large quantity of serous fluid escaped. In 1906, in the *Annales des Maladies de l'Oreille*, etc., the origin of these polypi was described by Killian. Fibroid changes take place after the passage through the opening.

Dr. DAN MCKENZIE said he was in a position thoroughly to corroborate Dr. Grant's diagnosis. He had had an opportunity, when the patient was on the operating table, of making a digital examination, both of the naso-pharynx and of the nose. From both positions the polyp could be felt leading into the antrum through a circular opening situated, as in Mr. Clayton Fox's case, behind and below the natural ostium. The little finger in the nose could be hooked into this opening, and the polypus was plainly felt to pass through it into the antrum. It seemed to be attached to the posterior wall of the cavity.

Mr. W. H. KELSON had shown a case some years ago in which a mucous polypus had bored a hole through the nasal bone, which was much thicker than the wall of the antrum.

Dr. JOHNSON HORNE said Dr. Grant had spoken of a possible recurrence. Did he suspect that the tumour was a fibro-angioma?

Mr. W. S. SYME asked whether there was any sign of antral disease before the operation. If not, its occurrence since—if it had occurred—might have been caused by the pulling away of the tumour.

Dr. PEGLER thought the trend of the discussion seemed to prove that most of these masses came from the antrum. Lately he had had a case where a digital mass emerging from the ethmoidal region had blocked up both choanæ. After removal it was clearly seen that the polypi had their origin in the ostium maxillare. The middle turbinal was almost quite atrophied and pressed up against the septum.

Dr. DUNDAS GRANT, in reply, said the case presented itself as one of nasal obstruction, and he found the naso-pharynx entirely filled by a large, firm, pink swelling. There was no history of epistaxis, but in other respects it seemed exactly like a naso-pharyngeal fibroma. While examining it under an anæsthetic he was able to pass his finger round it and get his finger into the left choana, feeling what he felt sure was the edge of an opening leading into the antrum. He thought it hardly possible to say that the growths were in the middle meatus, because the posterior part of the inferior turbinal seemed to have yielded and been eaten away. He put in a strong éraseur and grasped the tumour and tugged at it, and it came away with a tail attached. It was easy to pass the instrument into the naso-pharynx, and he could get it from the front. He scraped out the antrum as thoroughly as possible with a bent, sharp spoon. There was dulness on transillumination, and he thought that if recurrence occurred it would be best to open the antrum through the canine fossa and carry out more thorough scraping. He used the éraseur because he thought at first it might be a naso-pharyngeal fibroma which would require strangling. Microscopically there was very little œdema in the tissue, and it was slightly cystic, but the fibrous tissue in it was very dense. He did not doubt that the growth grew from the antrum. He passed the snare back to the point at which there seemed to be no more movement. There he grasped the tumour and did not believe that it slipped. Therefore the tail must have come from somewhere beyond the point at which the snare was applied. He thought it must come from the antrum. With the first finger of his left hand he could feel the anterior edge of it, and then his finger was introduced, coated with vaseline, through the anterior nares. He could not say the result of transillumination before the operation. There was now no pus running from it, and it looked as if the mucous membrane was thickened, and that there was disease in the antrum. It confirmed what had been shown at the Section by Dr. Powell, Dr. Tilley, and himself, that the tumour which had recurred after removal without opening the antrum was only exterminated when the antrum was opened through the canine fossa and the growth completely erased through that. Perhaps the word "mucous" polypus was not very strictly applicable in that case. If it was that originally, it had since become a fibrous tumour, *i. e.* a fibroma without œdema. He thought Dr. Powell would agree that its density would explain that after passing through the little opening and enlarging and causing atrophy by pressure in a bone already thin, there was formed a kind of fontanelle.

A CASE OF LUPUS OF THE EPIGLOTTIS.

BY DR. JOBSON HORNE.

The patient, a girl, aged seventeen, had experienced throat symptoms for twelve months; now only occasionally a sense of choking. The voice was less husky than when patient was first seen two months ago. The disease appeared to be confined to the epiglottis and the left ary-epiglottic fold. There was no evidence of pulmonary disease, and the examination of the sputum was negative. There was no family history material to the case.

Dr. McBRIDE asked if Dr. Horne had microscopical evidence in favour of the case being one of lupus. The nodules were larger than those of lupus and there was a ridge on the posterior pharyngeal wall, which in certain positions would be in contact with the epiglottis, and which looked to be a tuberculous infiltration. This ridge the speaker had seen in phthisical cases, but never in lupus. Was Dr. Horne going on clinical or microscopical appearances when he made the diagnosis of lupus?

The PRESIDENT said he had seen the ridge, which he thought was made up of lupoid nodules.

Dr. DUNDAS GRANT said that there was obviously disease of the right inferior turbinate body, and asked whether that presented the characters of lupus when examined under cocaine.

Dr. STCLAIR THOMSON asked whether lupus in the larynx was ever found without lupus in the nose. Escat had stated that the laryngeal was never found without the nasal disease. If this was a case of lupus it was very suitable for the galvano-cautery. He had had a case of well-marked lupus which had got well without any treatment—an experience which emphasised the danger of ascribing improvement to any particular kind of treatment.

Dr. JOBSON HORNE, replying to Dr. McBride, said he had based his diagnosis on the clinical appearances alone. He intended to adopt a conservative line of treatment. He had examined for signs of lupus in the nose and elsewhere with a negative result. He was not disposed to accept Escat's rule. He supposed that roughly about 8 per cent. of cases of lupus of the nose and skin manifested lupus of the larynx as well.

A CASE OF LARYNGEAL PARALYSIS FOR DIAGNOSIS.

BY MR. CLAYTON FOX.

A man, aged fifty-six, had noticed some thickness of speech for the past two years. His right cord was practically fixed in the median position.

There was some paresis of the facial muscles, but no further evidence of paralysis, and no evidence of intra-thoracic or cervical disease.

The case was shown with a view to eliciting a diagnosis.

Mr. DENNIS VINRACE thought the laryngeal paralysis was due to some obscure central nervous lesion, such as bulbar paralysis. He had been struck with the blank countenance and expression of sadness on the patient's face. The lower part of the face shared in the paresis.

Mr. HAROLD BARWELL said it was difficult to discuss satisfactorily a complex nervous case with so little opportunity for examination.

According to Mr. FITZGERALD POWELL the speech suggested bulbar paralysis.

Dr. DUNDAS GRANT regarded the case as one of disseminated sclerosis, but he thought it was a case of so much obscurity and interest that it should be referred to a neurologist for his analysis and opinion.

Mr. CLAYTON FOX said that one point was omitted from the description. The patient had come complaining of suppuration in both ears, and his laryngeal and nerve condition had been discovered accidentally. He agreed with Mr. Vinrace regarding the diagnosis. Nystagmus, intentional tremors, and other signs of disseminated sclerosis were absent. It was always difficult to trace to their proper source cases of laryngeal paralysis which were not dependent upon some local cause in the neck or thorax.

A CASE OF SWELLING OF THE RIGHT ARYTENOID WITH LOSS OF MOVEMENT OF RIGHT VOCAL CORD.

BY MR. W. H. KELSON.

The patient was a man, aged fifty-one, with a history of slight hoarseness and pain in throat for three weeks following rheumatism and bronchitis.

Dr. STCLAIR THOMSON said there was well-marked œdema of both aryteneids, and this, together with the ulceration noticeable on the right ventricular band, left no doubt in his mind that the case was tubercular.

Mr. HAROLD BARWELL agreed with the diagnosis of tuberculosis.

Mr. FITZGERALD POWELL asked whether the chest and the sputum had been examined.

Mr. W. H. KELSON said the patient had had syphilis, but the probability was that the laryngeal disease was tubercular.

A CASE OF ANGEIOMA OF THE RIGHT TONSIL.

BY DR. ANDREW WYLIE.

A female, aged twenty-six, attended Dr. Jakins' clinic with an enlarged right tonsil, the greater part of which consisted of a venous coloured growth. The patient complained of nothing, and, in fact, did not know that she had anything wrong until it was pointed out. She had been slightly deaf for the last ten years in the right ear. Regarding treatment, Dr. Wylie was of opinion that nothing should be done unless something occurred to cause inconvenience.

Mr. VINRACE agreed that the proper course was to leave the case alone, with general instructions to avoid hard or sharp food likely to lead to injury.

Mr. HUNTER TOD, referring to a case of venous angioma of the palate he had brought forward at a recent meeting, said he had tied the external carotid artery, but the operation had had not the slightest effect upon the growth.

CASE OF CONGENITAL LARYNGEAL STRIDOR.

BY DR. DUNDAS GRANT.

The patient, a boy, aged three and a half, was referred to the exhibitor at Brompton Hospital on account of his noisy breathing; this was an inspiratory stridor which only ceased when the boy breathed with unusual tranquility, and which was stated by his mother to have existed all his life. As he was obviously the subject of adenoids, these were removed, but after this operation the stridor was rather more marked than before. Laryngoscopy was practically impossible on account of the restlessness of the child, but it was effected under chloroform while the epiglottis was held up by means of a hook. There was then observable a distinct insuction of the ary-epiglottic folds during inspiration. There is practically no change in the loudness of the stridor, which is very much the same as it had been during the whole of his life. There were, however, no indications for such an operation as tracheotomy. Although it was usual for the stridor in these cases to disappear before the child reached this age, it was still hoped that in time, as the larynx grew, it would disappear. There was no sign whatever of a new growth, and the nature of the condition was quite certain.

The PRESIDENT said these cases generally got well before this age.

Dr. DUNDAS GRANT replied that the patient was rather worse after the adenoids were removed. The stridor was continuous except when he was very quiet.

CASE OF LUPOID ULCER OF THE FLOOR OF THE VESTIBULE OF THE NOSE.

BY DR. DUNDAS GRANT.

On the floor of the nose, extending to a small extent on to the septum, was an irregular, somewhat papillated ulcer with very little loss of tissue and scarcely any discharge. It was of eight months' duration, and in view of the condition of the lungs and larynx there seemed little doubt as to the nature of the disease.

Its appearance was, in the exhibitor's experience, a most unusual one, and he admitted that he only made the diagnosis on the strength of the collateral disease.

THE PRESIDENT said he did not see any ulceration.

DR. GRANT said it was on the floor.

MR. HAROLD BARWELL remarked upon the odd appearance of the sore. It did not seem to be either typical tubercle or lupus. He asked what evidence there was of its being tubercle.

DR. GRANT replied that the ulceration was chiefly on the floor. He had not seen anything of the kind before. If it had not been of long duration, or if there had been no history, it might have been thought to be a specific lesion. It was eight months old, and he did not think anything would have lasted so long, except very weak tubercle.

MR. H. BARWELL thought it ought to be more painful occurring, as it did, so late in a case of phthisis.

CASE OF A MALIGNANT GROWTH BEHIND THE CRICOID WITH ENLARGEMENT OF THE THYROID GLAND.

BY DR. T. W. BOND.

Three weeks ago the growth was scarcely visible; since then it had undergone rapid enlargement. There was some flagging of the right cord. Palliative treatment only was suggested.

MR. HAROLD BARWELL said the growth was quite visible on laryngoscopy, otherwise the case would have exemplified the value of von Eicken's hypo-pharyngoscopy in affording a satisfactory view of the posterior aspect of the laryngo-pharyngeal wall.

MR. FITZGERALD POWELL said Dr. Bond had at first felt some doubt as to its malignancy, but on passing the finger down to the mass and palpating it the diagnosis became clear.

A MAN, AGED TWENTY-EIGHT, WITH A DEVIATED SEPTUM AND PHTHISIS.

BY DR. HAMILTON BURT.

He asked for opinions regarding the advisability of operating upon the septum in view of the fact that the patient was suffering from tuberculosis in both lungs. Both vocal cords were injected, and there was an afternoon rise of temperature.

THE PRESIDENT thought these facts would contra-indicate operation.

MR. HAROLD BARWELL agreed with the President. The pyrexia and the presence of disease in both lungs certainly contra-indicated operation. If, however, the case improved, and there was no pyrexia for three months, he was of opinion that the septal operation might be undertaken.

DR. JOHNSON HORNE agreed with the President rather than with the last speaker in advising that the septum in these cases should be left

alone. Still, he expressed the conviction that nasal obstruction was a factor in phthisis which ought to receive more attention.

Mr. H. BURR said the patient had put on in weight 2 st. 9½ lb. since December, and the lungs also showed considerable improvement, although crepitations were still to be heard at the apices. He himself was rather inclined to straighten the septum in order to rest the larynx.

CASE OF SUBCUTANEOUS INDURATION OF THE FRONT OF THE NECK IN
A WOMAN, AGED THIRTY-TWO.

BY MR. E. WARD.

(Introduced by Mr. HUNTER TOD.)

Three or four weeks ago a hard swelling was observed over the region of the thyroid cartilage. This extended downwards and outwards to involve the anterior and lateral regions of the neck as low as the sternum and clavicle.

She was under treatment by Dr. Sequeira for an eruption on the face (?acne). The larynx, heart, and lungs were normal. There was no sign of intra-thoracic growth. Opinions were asked as to the nature of this swelling.

Dr. DUNDAS GRANT thought it looked like gumma, but he could not elicit a history to support that, except a miscarriage.

Mr. CLAYTON FOX said it was, in his opinion, a case of cellulitis induced by an infection of slight virulence. He was sure there was pus beneath the deep fascia.

Mr. VINRACE agreed with the diagnosis of cellulitis. There was no suggestion of syphilis. A free incision should be made in the middle line.

The PRESIDENT remarked on the hardness passing down over the trunk.

Dr. PEGLER asked if iodide of potassium had been tried.

Mr. W. S. SYME had observed a tendency to œdema of the face and auditory meatus, and looked upon this as œdema from lymphatic engorgement.

Mr. HUNTER TOD said the case had been sent to Mr. Ward by Dr. Sequeira ten days ago. There was then some swelling over the thyroid, and the provisional diagnosis of syphilitic perichondritis was made. But treatment by potassium iodide had had no effect on the swelling, which spread, as had been said, down towards the trunk, and there was now some difficulty in moving the arms and shoulders. Pain and temperature were absent. He did not know what it was.

Mr. FITZGERALD POWELL believed it was cellulitis, and advised a median incision.

Mr. E. WARD said there was no sign of thoracic disease. He could remember three cases similar to this one. The first, seen four years ago, developed a swelling in the neck, which was fomented under the impression that it was cellulitis. It ultimately proved to be a new growth—a lympho-sarcoma—which, spreading to the larynx, necessitated the performance of tracheotomy. The second case, under one of the surgeons of the London Hospital, was also taken to be cellulitis, and

freely incised. It turned out to be an endothelioma, the advance of which was hastened by the interference. In the third case there was œdema of the neck and face. After two months' treatment with iodides and the X rays the tumour disappeared. He had not seen this case since, but it also was probably of a malignant character. As a result of this experience, therefore, he was inclined to regard the case now on exhibition as malignant.

CASE OF KILLIAN'S OPERATION FOR CHRONIC SUPPURATION IN THE FRONTAL SINUS.

BY DR. DUNDAS GRANT.

The patient was a man, aged thirty-three, who for several years had suffered from a purulent discharge from the left nasal cavity. He had had an external operation on his left frontal sinus six weeks before coming under the observation of the exhibitor. There was then a scar rather below the left eyebrow, and a small sinus from which a drop of pus exuded. The antrum was found to be opaque on transillumination, and was therefore punctured and washed out by means of Lichtwitz's trocar, an enormous quantity of very foetid pus being evacuated; the fluid which was syringed into the antrum found its way up to the frontal sinus and came out of the external vestibule; the reason for this was probably that the middle turbinated body directed it upwards, and it was therefore decided to remove the middle turbinal and to re-open the frontal sinus. The patient was subjected to a very complete Killian operation, the bridge above the orbit being retained, although it was somewhat difficult to do this on account of the amount of bone which had been removed at the previous operation; the sinus extended to the outermost angle of the orbit, and the whole of its anterior wall was therefore removed. The trochlea was detached along with the periosteum of the roof of the orbit and turned downwards and outwards along with the eyeball. The steps of the operation were exactly those formulated by Killian, including a very free removal of the floor of the sinus nearly to the back of the orbit. This operation was carried out a fortnight previous to his being shown, and already the purulent discharge had disappeared, as also the diplopia, which had lasted for about a week after the operation. The amount of depression was extremely slight, though the exhibitor anticipated that it would increase to some extent as cicatricial contraction advanced in the interior.

ROYAL SOCIETY OF MEDICINE—OTOLOGICAL
SECTION.

Ordinary Meeting, Saturday, May 2, 1908.

DR. PETER MCBRIDE, *President of the Section, in the Chair.*

Abstract of Proceedings by DR. DAN MCKENZIE.

The following cases and specimens were shown :

LATERAL SINUS DISEASE ; OPERATION ; CURE.

BY DR. W. S. SYME.

This boy, aged six, was admitted into the Glasgow Ear, Nose, and Throat Hospital, suffering from a small painless swelling behind the right ear, and an otorrhœa of four weeks' duration. The tympanic membrane was destroyed in the posterior part. His temperature and pulse were normal, and there were no symptoms to cause anxiety. The case was looked upon as one of slow caries of the mastoid antrum and cells. The radical mastoid operation was performed on November 13, 1906. The antral cavity and mastoid cells were found to be turned into one cavity filled with carious *débris*, the posterior wall destroyed, and the lateral sinus exposed to a large extent. The wall of the sinus was covered with grey sloughy-looking granulations, which bled easily when touched, and which were not otherwise interfered with. The operation was concluded in the usual way. The cavity was packed, but the incision was left open in view of the condition of the sinus wall. A partial facial paralysis followed this operation. For three days his condition was satisfactory, but on the evening of the fourth day his temperature rose to 102° F. Thereafter he had rises of temperature with remissions, but no actual rigors. Looking to the unhealthy state of the sinus wall I was inclined to look upon the condition as one of toxæmia rather than of actual septic thrombosis of the sinus. The cavity was therefore dressed daily with wet carbolic dressings. On November 24, as there was no improvement, I exposed the sinus more fully posteriorly, where the wall appeared healthy, and downwards towards the bulb, in which direction the grey and unhealthy appearance of the sinus still persisted. On slitting open the vessel it was found that for three quarters of an

inch in its long axis and for half the circumference the wall was thickened, and to the inner surface a firm, dark clot was adhering. On removing the packing between the bone and sinus copious hæmorrhage occurred, but on controlling the upper part the flow from the lower part was only of moderate amount and was easily checked. This, I considered, pointed to a thrombus lower down partially obliterating the lumen. The sinus was packed. As after waiting thirty-six hours the temperature still pointed to septic absorption, I ligatured the internal jugular, which, however, was not thrombosed at the part exposed. The incision in the neck was sutured. The result of this procedure was an improvement in the patient's condition. The wound in the neck closed in a few days, but at the end of a week broke down, and discharged a fair amount of pus for five weeks, when it slowly healed. The mastoid cavity took a long time to fill up, and the boy left the hospital after a stay of twelve weeks. At the present time the ear is quite dry.

There are one or two points of interest in this case to which I should like to direct attention.

The mastoid disease developed in a most insidious manner without pain, and it was only the appearance of the small swelling which excited suspicion. Yet by this time the bone had been extensively excavated, and, looking to the condition of the sinus at this stage, he was evidently on the eve of a serious septic sinus thrombosis. Probably the course of events in the sinus was the following. The inflammation of the wall led to a slowly-formed mural thrombosis at the affected part. For a time the actual ingress of organisms was resisted, but either from weakening of the wall, or from the exposure of the granulations at the time of the mastoid operation, this resistance was overcome, and a secondary and infected thrombosis occurred in the lower part of the jugular bulb. It is worth noting that the early changes in the sinus occurred without fever, and that there was an absence of rigors even later, though this is not unusual in children.

The internal jugular was tied only after the operation on the sinus seemed to have failed to effect improvement. I say "seemed," because it is open to anyone to contend that sufficient time did not elapse between the two procedures.

The boy remained in a somewhat stupefied state for several days after the ligature of the jugular. The discharge of pus through the wound in the neck was, it seemed to me, the result of the breaking down of the clot in the sinus and upper part of the jugular, which found in this way a means of escape.

I regret that a bacteriological examination of the discharge from the ear was not obtained. Whatever the organism or organisms present, I am inclined to think we had to deal with a mild infective agent, and that this conduced to the successful issue.

Mr. CHEATLE asked why Dr. Syme had performed a radical mastoid in this case.

Mr. FITZGERALD POWELL asked why the sinus was not examined at the first operation when it was first exposed.

A CASE OF BEZOLD'S MASTOID EMPYEMA WHICH DISCHARGED INTO THE PHARYNX.

BY DR. W. S. SYME.

The history of this case, a man, aged fifty-two, is that a purulent discharge from his right ear from which he had suffered for eleven weeks had ceased three weeks before I saw him, but after its cessation a painful swelling appeared behind the ear and increased in size for two weeks, when suddenly he spat up a large quantity of pus, and pus also flowed from his nostrils. The swelling became smaller. Since then, however, it had again increased, and on examination it was not difficult to diagnose a Bezold's mastoid empyema. On looking into the throat pus could be seen trickling down the right side of the pharynx, but a detailed view of the naso-pharynx could not be obtained. Mentally, the man was dull and lethargic. The walls of the meatus were so swollen that the condition of the membrane could not be determined. On operation the whole mastoid process was found to be excavated and the inner wall destroyed. The antrum was not in communication with the diseased part, and was, therefore, not opened into. The abscess in the soft parts extended deeply beneath the angle of the jaw, but no special effort was made to find a way into the pharynx for fear of getting subsequent trouble from a fistulous opening. The ultimate course of the case was in every way satisfactory.

Dr. MILLIGAN said he had at a former meeting shown a case of purulent middle-ear disease with bilateral facial paralysis. In this patient an event similar to what occurred in Mr. Syme's present case took place on one side. The opening of the abscess in the throat was preceded by the signs of naso-pharyngeal obstruction. As a result of naso-pharyngeal infection the other ear suppurated and facial paralysis followed on that side also. The facial paralysis had undergone some improvement on the second side, but persisted unaltered on the first.

INJURY TO THE PHARYNGEAL PORTION OF THE EUSTACHIAN TUBE FROM
UNSKILFUL OPERATIVE PROCEDURES.

BY DR. W. S. SYME.

The patient, a woman, stated that some months before she was sent to me she had been operated on on two occasions by a medical man, a general practitioner, for nasal catarrh. After the second operation she had become quite deaf in the right ear, although previously her hearing in both ears was very good. When I saw her the tests were: Watch, right ear 0, left $\frac{3.0}{4.0}$; Rinne, right ear —, left +; Weber, right. The more detailed tests showed nothing of interest.

Both membranes, but especially the right, showed loss of translucency with adhesions and indrawing. In the naso-pharynx there was much purulent discharge with crusts. After removing these it was seen that the right Eustachian prominence was absent; the left was normal in size and position. There was also destruction of the posterior part of the nasal septum. Catheterisation was performed with difficulty on the right side, and only a very slight improvement in the hearing resulted. On the right side of the pharynx, just above the level of the palate, was a rounded protuberance about the size of a large pea. This was firm to the touch, and I took it to be the Eustachian cartilage torn from its attachment and drawn into that position by the action of the levator palati or dilator tubæ. As far as I could gather the damage had been done by forceps introduced through the nostril and used without either knowledge of the anatomy or regard for the structures. A secondary adhesive inflammatory condition had arisen in the tympanum, and this, combined with the constriction of the tube, had led to disastrous consequences as regards the hearing.

The case formed the subject of legal proceedings, which, however, were settled out of court, the patient receiving some compensation.

The PRESIDENT asked what the membrana tympani was like, and what evidence there was as to the condition of the hearing previous to the operation.

Dr. SYME, in reply, said the sinus in Case A was not disturbed at the first operation because the wall was covered with granulations, and unless sure evidence of intra-sinusal disease existed these granulations should not be interfered with, as a case proved which he had shown at the British Medical Association meeting in the summer. In answer to Mr. Cheatle, the radical mastoid operation was performed because there was so much destruction of bone that any limited procedure was out of the question.

Regarding the evidence for hearing in Case C prior to the operation, he had both the doctor's and the patient's word for it that hearing was perfect before, and that the deafness followed the operation. The membranes showed indrawing and adhesions.

CASE OF UNILATERAL HYSTERICAL NERVE-DEAFNESS OF SUDDEN
ONSET WITH HEMI-ANÆSTHESIA AND OTHER ALLIED STIGMATA.

BY DR. DUNDAS GRANT.

Woman, aged twenty-seven, first seen February 12, 1908. Complained of deafness in right ear. Onset sudden, with pain in head. Duration four months. Comparative hemi-anæsthesia right. No vertigo or nystagmus on rotation. Marked narrowing of field of vision. Galton's whistle only heard at mark II. Tuning-fork (c^1 , 256 D.V's.) when first seen not heard either at the meatus or the mastoid; on the vertex it was heard only in the opposite ear; Rinne's test could not be reliably taken. Her symptoms have since then somewhat diminished.

DR. PURVES STEWART had been asked by Dr. Grant to examine this patient. He had found that the stigmata of hysteria present were—diminution in the senses of smell and taste, together with impairment of ordinary sensibility on the same side of the body as the deafness. There were sudden paroxysms of return of hearing. It would be interesting to ascertain whether this sudden improvement in hearing was associated with improvement in the other senses as well. An unusual feature in the case was that the functional loss was right-sided. As a rule it was left-sided, save in left-handed people, and it would be of interest to ascertain whether the patient was or was not left-handed.

DR. DAN MCKENZIE said he was responsible for the observation that nystagmus and vertigo were absent on rotation in this case. The tests were conducted in the presence of visitors and students at the Central Throat and Ear Hospital. The patient was seated in a chair slung by two ropes from the ceiling. After rapid rotation to the right the eyes strongly deviated towards the left, and, after further rotation towards the right manifested absolutely no nystagmoid movement, and the same was found on rotation to the left. In like manner there was an entire absence of staggering, even of swaying, when the patient stood up after rotation, and in reply to questions she stated that she felt no giddiness. The speaker did not know whether these tests had or had not been applied to cases of hysterical deafness before.

DR. MACLEOD YEARSLEY asked whether Dr. Grant used the ordinary Galton or the Edelmann-Galton in making his tests. The number of vibrations should be recorded. His own opinion was that the ordinary Galton was a very unreliable test-instrument, and he asked for the opinions of the other Fellows on the point.

THE PRESIDENT said that the diagnosis in this case was facilitated by the co-existence of other stigmata of hysteria, but he feared that in those cases where the deafness was the only symptom a correct diagnosis was only reached after cure, as in a case he had published eighteen months ago. This was a girl, aged eighteen, but still at school, in whom deafness followed mumps. Some months after the onset she heard a

sudden roaring in the head and the hearing returned. There were no signs of middle-ear disease.

Dr. HASLAM asked what was the constitutional condition of the patient.

Dr. DUNDAS GRANT said hysterical nerve-deafness took different forms. When unilateral it was probably part of the hemianæsthesia present in so many cases. When it was bilateral the diagnosis was not so easy. He had published a case in which he made the diagnosis on the strength of the hearing being equally low for the notes in all parts of the scale, not chiefly for the highest. That patient learned lip-reading without knowing it. She eventually recovered her hearing as a result of an illness, probably by producing a counter-irritation of the system. Deafness for all tones equally was more likely to be central than where hearing was lost only or mainly for high-pitched tones. The present patient's hearing, however, did not quite bear that out, as it was markedly diminished for high-pitched tones; she could not hear the Galton whistle at all. He still used the old-fashioned Galton whistle, but he endeavoured to get one graduated exactly in millimètres. He would be glad to hear whether the improved whistle was much better. There were, however, many other disturbing factors of greater importance than an imperfection in the whistle. The constitutional condition was, in the case exhibited, extremely marked.

Dr. PURVES STEWART, in reply, said monosymptomatic hysteria was the least common form, and when it did occur it was the most difficult of diagnosis. Referring to the labyrinthine tests he mentioned Barany's caloric tests, which showed that when the temperature in the labyrinth was raised or lowered nystagmus occurred on deviation of the eyes to the opposite side. The nystagmus was sometimes rotary, sometimes lateral; it was accompanied by vertigo. In organic labyrinthine disease this should not exist, in functional disease it should exist. The result of Dr. McKenzie's experiment, at which he was not present and to which he could not bear testimony, was unexpected.

The PRESIDENT pointed out that it was an error to speak of the cold being applied to the labyrinth. The cold was only applied to the membrane and meatus.

Dr. MILLIGAN supposed that it might be a reflex starting in the meatus.

CASE OF UNILATERAL NERVE-DEAFNESS IN AN ELDERLY MAN.

By Dr. DUNDAS GRANT.

Man, aged seventy, complained of deafness in right ear. Duration one year, after nervous breakdown. Sudden onset. Frequent attacks of vertigo. Double vision on looking upwards and to the right. Unsteadiness diminished by closure of the eyes. Probably two separate lesions. History of former specific infection. Scar on the right half of hard palate. Comparative hemianæsthesia, which has since become much less marked. Galton's whistle not heard at all on the right side, but at mark 1.6 on the left. The tuning-fork (c^1 , 256 D. V's.) not heard at the meatus,

and diminished to the extent of fifteen seconds on the mastoid; on the vertex only heard in the good ear; Rinne's test uncertain.

Dr. PURVES STEWART said there was probably an organic lesion of the right auditory nerve, with weakness of the right sixth cranial nerve, and this excluded functional disease. The sixth nerve of itself was of little localising value. There were also present pain in the right orbit (the first division of the fifth) and absence of signs of involvement of tracts of the brain stem, from which he argued that the lesion was a superficial one of the right side of the base, syphilitic, neoplastic, or chronic inflammatory. He advised treatment with iodides. One further test, examination of the cerebro-spinal fluid, should be adopted. In syphilitic lesions there was a lymphocytosis.

Dr. MACLEOD YEARSLEY asked if the case was not one of the rare type of auditory tumour described by Hartmann.

Dr. MILLIGAN thought that the sudden onset denoted a vascular change, possibly a syphilitic endarteritis with effusion.

The PRESIDENT expressed the indebtedness of the Section to Drs. Grant and Purves Stewart.

Dr. PURVES STEWART, in reply, agreed with Dr. Milligan that the lesion might have been an endarteritis with thrombosis. There was no evidence that the lesion was a tumour of the cerebello-pontine type. The vertigo was ocular and not central, because it disappeared on closing the eyes.

SEQUESTRA FROM A CASE OF NECROSIS OF LABYRINTH.

BY DR. MACLEOD YEARSLEY.

The patient was a girl, aged twenty-two. Discharge from both ears on and off since measles at five. Right discharge got much worse July, 1907, when it became more profuse, fœtid, and stained with blood. A sudden attack of what she called "brain fever" in September, 1907, when she fell down and was carried home. Very ill till December, 1907. Only symptom ascertained from the vague history given by patient and her friends was vertigo. She also had an attack of vertigo last March (1908), when she fell to the right.

Seen on April 29, 1908: Very ill, temperature 98° F., pulse 100, of good quality; no nystagmus. Right ear full of granulations, profuse, very fœtid, blood-stained discharge. Admitted and operation April 30. Very foul curdy discharge in antrum. Middle ear and antrum full of granulations. Clearing this out, facial nerve lying fully exposed across the cavity, dead bone felt. Four sequestra removed—two from inner antral wall, two from inner tympanic wall. Former consisted of part of vestibule and semi-circular canals; latter much eroded promontory and part of modiolus with lam. spin. ossea. Owing to condition of patient, wound packed from behind.

CASE OF HYPERPLASIA OF THE AURICLE.

BY MR. FURNISS POTTER.

A woman, aged forty-three, with an unusual amount of hyperplasia of the auricle of three or four years' duration associated with eczema of both auricles and meatus.

Mr. FITZGERALD POWELL thought the appearances suggested keloid.

Dr. DAN MCKENZIE looked upon the condition as a simple œdema due to circulatory and lymphatic obstruction from the eczematous subcutaneous infiltration.

Dr. MACLEOD YEARSLEY remembered a similar case in which the ordinary treatment for eczema cleared up the hyperplasia.

Dr. JOBSON HORNE saw in the case a resemblance to the old-fashioned aural polypus. It was also reminiscent of some tropical diseases. A microscopic specimen should be obtained.

Mr. W. H. KELSON said the appearance recalled condylomata.

FOREIGN BODY IN THE EAR.

BY MR. L. LAWRENCE.

A boy, in whom the irritation set up by a small foreign body in the ear induced a condition having a striking resemblance to a new growth.

OCCLUSION OF THE POSTERIOR NARES.

BY MR. HUNTER TOD.

A child with complete occlusion of the posterior nares, with flattening of the nose externally and almost complete absence of the nasal septum. Suggestions for treatment were asked for.

The PRESIDENT asked if the deformities were due to syphilis.

Dr. DUNDAS GRANT agreed with the President, but did not think the occlusion was now specific, but of a fibrous character, such as might occur from severe suppurative inflammation of the posterior choana, or the remains of syphilis. If it were in an adult one would puncture through the nose, and keep a tube in for a considerable time, perhaps even always. But in such a young child, with that history, he did not recommend it. Eventually it would perhaps be necessary to remove the posterior portion of the nasal septum.

Mr. HUNTER TOD said there was undoubtedly complete atresia. With regard to treatment, it would be impossible in a child so young to adopt the treatment of breaking down the adhesions and keeping them apart by means of a tube passed through the nose and out of the mouth.

THE CLINICAL PATHOLOGY OF AURAL DISCHARGES.

BY DR. WYATT WINGRAVE.

This paper will be found *in extenso* on page 302.

Dr. JOBSON HORNE said that in the remarks he was about to make he approached the subject in a critical but not in a destructive spirit. To begin with, the thanks of the Section were due to Dr. Wingrave for the paper. He was approaching disease from the proper side—that was from the bacteriological aspect. Regarding the question of the acid-fast bacteria, the speaker (Dr. Horne) was not entitled to the credit for the view that cerene was the cause of the acid-fast qualities. It was Arensen, and previous to him Unna and others had drawn attention to the presence of fat as being the substance which conferred this quality upon certain micro-organisms. At the International Congress on Tuberculosis in London, Bullock, of the London Hospital, and others attributed the property to the presence of waxy substances. The speaker did not think that anything said to-day on the butyric acid source had advanced the question any further. Dr. Wyatt Wingrave had said that cultivations alone should not be relied upon for distinguishing bacteria and as a test for the pathogenicity of certain microbes, but the speaker looked upon the behaviour of organisms when cultivated as of great importance. For example, the question of the variety of growth at certain temperature conditions was of great value in differentiating pathogenic acid-fast bacilli from those which were non-pathogenic. In addition to that animal experiments must be resorted to. In the speaker's opinion culture experiments were more reliable tests than the mere staining of films. Regarding the classification of the bacteria, the only useful classification was into pathogenic and non-pathogenic. The distinction was interesting and difficult, since the question whether pathogenic bacteria ever became non-pathogenic still awaited solution. Thus the general impression would be that the paper represented an excellent but thankless, because not sufficiently practical, study. Regarding the collection of discharges by means of a pipette, the speaker had drawn attention to his experience at the Leicester meeting of the British Medical Association that after paracentesis much could be done both from the point of view of diagnosis and of treatment by this method. Further, Dr. Wingrave had said regarding the pneumococcus, that this organism though often harmless in the mouth was dangerous in the ear. The speaker had conducted a series of experiments in normal ears, examining the contents of the tympanic cavity after death by means of a fine pipette inserted, with all bacteriological precautions, into the tympanum. He had found the pneumococcus present in many cases, and it was found by animal experiment that some of these were pathogenic and some were not. So he regarded the work done and set forth in this paper as only practical and useful to a slight extent.

Dr. MILLIGAN said that his experience had shown that the cytological and bacteriological examination of ear discharges was of undoubted practical utility. Dr. Wingrave had set himself to answer the question put down at the beginning of his paper, and the speaker could, from his own clinical experience, show the value of such examinations. For example, he had met with cases of middle-ear disease where the indications for operation were dubious, but where the cytological examination of the discharges, removed by careful washing out, showed the presence of acid-fast squames, crowded with bacteria and indicating, according to Dr. Wingrave, that the case was one of infected cholesteatoma, and this the operation proved to be correct. Here one gets definite practical information from the microscope. Regarding the acid-fast bacilli and the question of tuberculosis, the speaker looked upon the presence of myelocytes, etc., in the film as evidence in favour of tubercle as good

as the discovery of the tubercle bacillus in the ear. The subject, doubtless, was still *sub judice*, but it was well worth working out, since even now it helped us in doubtful cases. The methods were not so very difficult, and much depended upon the care expended in collecting the discharge. He himself preferred a delicate platinum loop to the pipette. Finally, he wished to say that, from his own experience and observation, the cytological examination of ear discharges had a distinct and definite value.

Dr. KELSON thanked Dr. Wingrave for his admirable paper and wished to put a few questions: (1) He had noticed no mention of diphtheria, but one often came across obstinate cases of discharge from the ear after this disease, and one would like to know if the Klebs-Loeffler bacillus was found in these cases, or whether there was any reason to think contagion might be spread in this way; the same point applied to scarlet fever. He had met with a case in which, a year after a bad attack of scarlet fever only aural discharge appeared to remain, but in which there was reason to think the disease was transmitted to two families. He should be glad to hear more about cholesteatoma and allied conditions, which were very common, troublesome, and destructive: Was any bacterial agency at work in this condition? Sometimes an apparently similar condition interfered with the final complete healing after the radical or other operation in the ear.

Dr. DUNDAS GRANT said he thought there could scarcely be any question about the practical value of Dr. Wingrave's work, and he was sure Dr. Horne had the greatest sympathy with the author in the work he was carrying out. He wished that Dr. Wingrave had been able to follow out the clinical histories of all the cases which he had examined bacteriologically, but perhaps the failure to do so was partly due to the partial support given to the work by those working at the hospital, but such was very difficult in the immense crush of work there. The author's efforts tended to make otology much more scientific, and if the after-histories of cases were more constantly placed at his disposal he believed that a future paper based thereon would answer all criticisms. Even though the result of cytological examination was not so absolute as some expected, the great value of the method would be confirmed.

Dr. DAN MCKENZIE wished to draw attention to one feature in Dr. Wingrave's paper which had not received notice by the previous speakers, although it was a point of novelty so striking as to confer upon the paper an importance beside which even the other points, interesting though they were, seemed of slight significance. This was the discovery by Dr. Wingrave of the *Spirochaeta refringens* and other mouth organisms in ear discharges, and not only in ear discharges, but also in cerebral and cerebellar abscesses. Whether or not these organisms were pathogenic was, perhaps, at present not yet settled, but their discovery in purulent discharges from the middle ear and in brain abscess was extremely suggestive. It looked as if one more disease was to be added to the long list which they knew to be dependent upon oral sepsis. Of these he would only mention gastro intestinal infections, gastric ulcer, certain forms of fetid bronchitis, septic tonsillitis and pharyngitis, and sometimes nasal suppuration. Now, it seemed as if the presence of oral sepsis, even if it did not initiate, might, at all events, be suspected of perpetuating suppuration in the middle ear and the adjacent cavities. If future investigators were able to support Dr. Wingrave in this discovery, that of itself would confer upon his work a value for which not only this section, but also medicine in general, would be indebted to him.

The PRESIDENT expressed to Dr. Wingrave the thanks not only of the Section but of all otologists.

Dr. WYATT WINGRAVE, in reply, said he pleaded guilty to an enthusiasm for the subject, but unfortunately he had omitted, until within the last three or four years, to keep his records as carefully as he ought. In reply to Dr. Jobson Horne's criticisms of his preference for the staining method over cultivation, he wished to say that in his experience neither alone was sufficient. But of the two, proper staining was the more efficient for rapid diagnosis, and he considered his methods of staining reliable, but further experience was necessary. As regards a division of bacteria into pathogenic and non-pathogenic, there could be no doubt that such a distinction was a matter of great difficulty, since many bacteria seemed to enjoy a two-fold phase. All the bacteria found in the mouth, and perhaps harmless there, under other circumstances might prove to be harmful. For example, the leptothrix in the middle ear was undoubtedly different from the leptothrix in the throat. With reference to the acid-fast qualities, he drew attention to the recent publication by Professor Deycke that a neutral fat, termed *nastin*, had been separated from the leprosy and tubercle bacillus. He was firmly convinced of the clinical value of this method of examination. The results in cholesteatomatous cases alone proved how valuable it was. The presence of mouth and throat bacteria in the ear indicated the necessity of treating the throat in order to cure an ear discharge. In answer to Mr. Kelson's question regarding diphtheria, he had to say that he had not definitely found the Klebs-Loeffler bacillus, but a Gram positive and a Neisser positive bacillus was not infrequently present in acute exacerbations of chronic suppuration. Finally, he remarked that he knew his paper only touched the fringe of a great subject, but he had published his results in order to stimulate the further investigation of antral discharges, since books dealing with diseases of the ear did not touch the subject at all.

CASE OF SINUS PHLEBITIS FOLLOWING CHRONIC SUPPURATION OF THE
MIDDLE EAR; LIGATURE OF THE JUGULAR, ETC.; RECOVERY.

BY DR. DUNDAS GRANT.

This case was shown, but the discussion postponed till next meeting.

PROCEEDINGS OF THE PARISIAN SOCIETY OF
LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

Meeting held on April 10, 1908.

COMPARATIVE APPLICATION OF THE METHODS OF EEMANN AND ROY
IN THE SAME PATIENT WHO HAD BOTH EARS OPENED.

M. H. LUC had occasion, at one sitting, to open both ears in a young boy suffering from double chronic otorrhœa. The lesions

were similar, and it seemed to him that the opportunity was an excellent one for applying the two methods of dressing, on the same soil, in order to compare them and judge of them. The first dressings after the operation were plugs of iodoform gauze. From the twelfth day the left side was dressed with boracic powder according to Eemann's technique. In the right side there was placed a strip of gauze soaked in gomenolised vaseline oil, as recommended recently by Roy (of Montreal) for the purpose of avoiding the symptoms of painful irritation which so often accompany dressings with boracic acid.

These dressings were renewed each day. A month after the operation the left ear had completely cicatrised. On the right side, on the contrary, after two months of dressings, cure was not absolutely perfect. M. Luc submitted his patient to examination by his colleagues, and he concluded with the following comparative statement:—"Until further investigation the rule for treatment after such operations would be the following: after eight or ten days of plugging with iodoform gauze to try the application of Eemann's method and to continue it if well borne. If not, to substitute for it temporarily Roy's method, but to return to the boracic powder as soon as all trace of irritation of the part had disappeared under the application of the oily dressings."

M. LUBET-BARBON had not observed this pain following the application of boracic acid which most writers had described, and he used boracic acid, but not exclusively. It often happened that the insufflations had to be interrupted in order to insert "wicks" for several days when it was necessary to remove some granulations.

M. MAHU once again protested against proceedings which allowed the cavity, in the case of a cholesteatoma, to become filled up. He had a great many times come across (and often many years after cure) recurrences of cholesteatoma which could be treated and cured because the cavity had remained sufficiently large, whereas if the cavity had been filled up, the cholesteatoma would have continued to form and a second operation would have been necessary.

M. GAUDIER had alternately used boracic acid dressings and dressings of vaseline oil. In view of the variable results he had not persevered with them, but had returned to dressings of gauze.

M. PAUL LAURENS.—Dressings of boric acid on the operation wounds have been accused of causing violent pain, producing

exuberant granulations, and being followed by premature fibrous closing of the operation cavity. These inconveniences have been exaggerated, and are not reported among the numbers operated on and dressed daily at the Saint-Antoine Hospital under the care of M. Lermoyez. Fibrous filling up of the cavity is avoided, and the normal dimensions of the drum are preserved if during the first two weeks following the operation the wound is plugged with gauze, and the boracic acid, powdered and sterilised, is only used when the wound begins to epidermise. If used at this stage boracic acid does not cause pain and does not favour granulation.

M. KÆNIG remarked that boric acid powder caused pain when it was insufflated during the first days after the operation, but not later when the bone was covered with granulation tissue.

FUNCTIONAL NASAL IMPOTENCE; TREATMENT BY RE-EDUCATION.

M. ROBERT FOY brought forward five cases, one in person, of women formerly suffering from nasal obstruction, who for some years, in spite of free nasal passages, were unable to breathe as soon as they tried nasal respiration. All the functions of the nose were equally impaired. Three had some of the stigmata of hysteria; the two others had none. The two latter were cured in a few days by re-education. The author put the condition down to a slight psychosis, a systemic motor will-lessness, in the same way as functional and professional cramp could exist with hysteria, and was relieved by psycho-motor discipline.

BRAIN ABSCESS OF OTITIC ORIGIN; HEADACHE THE ONLY SYMPTOM OF SUPPURATIVE MENINGITIS AND OF AN ABSCESS OF THE TEMPORAL LOBE; OPERATION; CURE.

M. GAUDIER (of Lille) reported the case of a man thirty-five years old, suffering from an old-standing ear discharge, who for a month had had terribly painful headache on the right side, without any other symptoms indicating a possible cerebral lesion. On trephining a large opening in the temporal bone the meninges bulged; on incision fetid pus flowed out; then the congested brain bulged in the wound; on puncturing there escaped some thick pus, equally fetid. Drainage; petro-mastoid opening. In spite of complications about the teguments, complete cure took place in three months.

M. KÆNIG reported the case of a patient suffering from intense cephalalgia without any other symptom; the cephalalgia was non-

localised, depriving him of all sleep, and making it impossible for him to work. He had had suppurative otitis in the right ear about two months previously, of which he had been cured at a clinic, where they had told him that the pain would disappear. No medication had any effect on the cephalalgia, and the patient died.

M. CORNET, with reference to the importance of headache in the course of otitis, recalled the case of a patient whom he had examined for the first time three months after mastoid trephining, and who, since the beginning of the otitis, had suffered from acute diffuse headache, which was not relieved at all by antrotomy. The intensity of the pain forced the author to operate. At the time of the operation (the day after the decision was made) there existed a sub-occipital collection raising the muscles of the nape of the neck, and which had formed during the night. The operation revealed the presence of an extra-dural collection in the cerebellar fossa which communicated, by an orifice situated in the circumference of the occipital space, with the cervical collection.

LARGE CRICO-TRACHEAL POLYPUS; REMOVED BY DIRECT TRACHEOSCOPY; CURE.

M. GUISEZ showed a pedunculated tumour of the size of a bilobate cherry, which he had removed by direct tracheoscopy.

An external operation (thyrotomy) had been proposed to the patient for the removal of this polypus, the pedicle of which was situated in the right latero-inferior part of the cricoid. The tumour moved about freely in the crico-tracheal space, first showing itself in the larynx, then falling into the trachea, according as the patient was expiring or inspiring. The symptoms of asphyxia were very marked. With the spatula-tube, the epiglottis being pressed against the base of the tongue by means of straight forceps with jointed end, M. Guisez was able to remove this tumour directly through the mouth; recovery took place very rapidly. This was a new and fortunate application of the interesting methods of tracheo-bronchoscopy.

CHRONIC COCAINISM THROUGH THE NOSE.

M. A. HAUTANT.—It is exceptional to find the occurrence of chronic cocaineism due to the introduction of cocaine through the nasal passage. However, some such cases have been observed by Sollier. Independently of the troubles generally reported, the

author, who had just been watching a patient suffering from cocaineomania (10 grammes of cocaine a day), pointed out the possibility of local accidents showing themselves by a superficial ulceration at the entrance of the normal vestibule, which would rapidly disappear with the suppression of the toxin.

M. LEBET-BARBON had a great number of times observed perforation of the septum in the subjects of nasal cocaineomania. This might be explained by the vaso-constrictor action of cocaine, which caused anæmia of the tissues and took away their vitality, the perforation being produced by a kind of gangrene from arrest of the circulation.

ABSCESS OF THE BRAIN IN CONNECTION WITH CHRONIC BILATERAL FRONTAL SINUSITIS.

M. PAUL LAURENS.—The deep osseous wall of the sinus having been found intact and the meninges normal, it had to be admitted that infection had taken place through the vascular channel (venous or lymphatic). The pus from the abscess contained pneumococci. Symptoms:—Slow cerebration amounting almost to coma, and slowness of the pulse, which was 48. Both changed rapidly after the opening and drainage of the abscess cavity. Three hours after the operation the pulse was 65.

Since the abscess cavity occupied the frontal lobe, and was of the size of a mandarin, the cerebral functions became normal. The opening of the encephalic abscess had to be as large as possible, a voluminous means of drainage provided, and the dressings renewed twice a day.

(G. VEILLARD (K. D., transl.)

GERMAN OTOLOGICAL SOCIETY.

Programme of the Seventeenth Meeting, at Heidelberg, June 6 and 7, 1908.

Discussion on a report by Prof. KÖRNER (Rostock).—*The Conservative Treatment of Chronic Suppurations in the Middle Ear.*

Dr. A. SCHEIBE (Munich).—*What may we Expect from the Conservative Treatment of Chronic Suppurations in the Middle Ear?*

Dr. HEGENER (Heidelberg).—*On the Determination of the Upper Limit of Audition.*

Dr. HEGENER (Heidelberg).—*Demonstration on the Objective*

Determination of the Number of Vibrations of the Highest Pitched Tones.

Dr. CLAUS (Berlin).—*Observations on the Significance of Weber's Test.*

Dr. BARANY (Vienna).—*Demonstration on the Diagnosis of Unilateral Deafness.*

DRS. KARL L. SCHAEFER (Berlin), and H. SESSOUS (Berlin).—*On the Value of the Auricular Chain in Regard to Hearing, according to Experiments on Patients who had undergone the Radical Operation on both sides.*

Dr. WANNER (Munich).—*On Determining the Duration of Hearing in Congenital Deafness.*

Dr. R. FREYTAG (Magdeburg).—*On Colour-hearing.*

Prof. POLITZER (Vienna).—Title uncommunicated.

Prof. DENKER (Erlangen).—*Demonstration of the New Bezold Model Ear.*

Dr. SCHÖNEMANN (Bern).—*Demonstration of New Flat Models of the Human Organ of Hearing.*

Dr. MANASSE (Strassburg).—*On Eustoses of the Internal Auditory Meatus (with demonstration).*

Dr. RUTTIN (Vienna).—*Demonstration of the Surgery of the Temporal Bone.*

Prof. F. SIEBENMANN (Bâle), and Dr. JOSHI. —*Demonstration of Acoustic Experimental Injury of the Labyrinth.*

Dr. MARX (Heidelberg).—*Injuries of the Labyrinth from Radiation; Demonstration.*

Dr. BLOCH (Freiburg).—*The Aetiology of Ankylosis of the Stapes.*

Dr. BRÜHL (Berlin).—*Microscopical Demonstration of Otosclerosis.*

Dr. J. HOFFMANN (Heidelberg).—*On the Case-history of Tumours in the Ponto-cerebellar Angle, with Demonstration.*

Dr. HOFFMANN (Heidelberg).—*Menière's Syndrome in Meningitis.*

Prof. F. SIEBENMANN (Bâle) and Dr. JOSHI. —*Demonstration of Preparations of Circumscribed Labyrinthine Suppuration.*

Dr. H. FREY (Vienna).—*The Question of Malformation of the Organ of Hearing in an Encephaly, with Lantern Demonstrations.*

Dr. H. NEUMANN (Vienna).—*Clinical History and Pathology of Diseases of the Labyrinth.*

Dr. RUTTIN (Vienna).—*Demonstration on the Pathology of the Internal Ear.*

Dr. ALT (Vienna).—*Demonstration of Microscopical Preparations of Labyrinthine Suppuration and its Results.*

Dr. R. NÄGER (Bale).—*Demonstration of the Formation of Labyrinthine Sequestra in Carcinoma of the Middle Ear.*

Dr. HEGENER (Heidelberg).—*On Microtomical Technique; Demonstration.*

Dr. VOSS (Frankfurt).—*Clinical Observations on Non-suppurative Inflammations of the Labyrinth in the Course of Acute and Chronic Suppuration in the Middle Ear.*

Dr. LINDT (Bern).—*Rhinological Communication.*

Dr. MARX (Heidelberg).—*Demonstration of Osteomas of the Ethmoid Cells.*

Prof. KUMMEL (Heidelberg).—*The "Deepest Point" of the Antrum of Highmore.*

Dr. STENGER (Königsberg).—*On the Changes in the Ear resulting from Injuries to the Head.*

Dr. F. ALT (Vienna).—*The Operative Treatment of Orogenic Facial Paralysis.*

Dr. H. NEUMANN (Vienna).—*Demonstration on the Course of the Operation Wound.*

Dr. UFFENORDE (Göttingen).—*On Two Cases of Sub-dural Abscess (with demonstration).*

Dr. UFFENORDE (Göttingen).—*Pathological and Bacteriological Observations on a Case of Extensive Parietal Sinus Thrombosis.*

Dr. MÜLLER (Heilbronn).—*Demonstration of a Wound Retractor.*

Prof. HARTMANN (Berlin).—*On the Closure of Retro-auricular Openings by fastening back the Auricle.*

Dr. VOSS (Frankfurt).—*Demonstration of a Salpingoscope with Arrangements for the Use of the Catheter or Bougie.*

THE SOCIETY OF SOUTH GERMAN LARYNGOLOGISTS.

Fifteenth Meeting at Heidelberg, Monday, June 8, 1908.

The following is the proposed programme :

Dr. NEUGASS (Mannheim).—*Short Laryngological Communications.*

Dr. KATZ (Kaiserslautern).—*Partial Synechiae of the Vocal Cords after Injury.*

Prof. KILLIAN (Freiburg).—*The Accessory Sinuses of the Nose in Scarlet Fever.*

Dr. VON EICKEN (Freiburg).—*Our Experiences of the Complications of Diseases of the Nasal Accessory Sinuses.*

Dr. BRÜNINGS (Freiburg).—(a) *On Light Treatment in Acute Empyema of the Accessory Sinuses.* (b) *Contributions regarding the Sub-mucous Resection of the Septum.* (c) *On the Principles of Illumination in Endoscopic Tubes.*

Dr. MANASSE (Strassburg).—*The Pathology and Treatment of Malignant Tumours of the Nasal Cavities.*

Prof. KÖRNER (Rostock).—*The Analogies between Vagus-recurrent and Ocular Motor Paralysis.*

Dr. VEIS (Frankfurt).—*Gumma of the Nasal Accessory Sinuses.*

Dr. GUYOT (Geneva).—*Tumour-like Tuberculosis of the Nose and Maxillary Sinus.*

Dr. STARCK (Karlsruhe).—*Demonstration of Cases: Tumour of the Frontal Sinus.*

Dr. GORIS (Brussels).—(a) *Radical Operation for a Commencing Sarcoma of the Nasal Septum.* (b) *Operation for Primary Tuberculosis of the Tonsils.*

Dr. LINDT (Bern).—*Rhinological Communications.*

Dr. SCHÄFER (Munich).—*Demonstration of an Operation Chair for a Laryngo-otologist's Consulting-room.*

Dr. NAGER (Bale).—*Demonstration of Tumours of the Naso-Pharynx.*

Dr. NADOLECZNY (Munich).—*On the Treatment of Lacunar Angina.*

Dr. KAHSNITZ (Karlsruhe).—*Communication on Inhalation Treatment.*

Dr. JURASZ (Heidelberg).—*Contributions to the Pathology and Treatment of Tuberculosis of the Larynx.*

PROFESSOR GERBER informs us that he is occupied with a work concerning the complications of frontal sinusitis, not only those affecting the brain (abscess, meningitis, etc.) and pyæmia, but also those in connection with the eye and the bone, such as osteitis, osteo-myelitis, necrosis, periosteal abscess, dilatation, cysts, etc., and he would be glad to receive information of any such cases with details. If any of our readers can assist him in making this important investigation as complete as possible, they will be doing a service to the specialty. His address is Fliesstrasse, Königsberg, Prussia.

Abstracts.

NOSE.

Theoris, A. (Sampigny). *A Fatality subsequent to Cauterisation of the Inferior Turbinal Bodies.* "Revue Hebd. de Laryngologie, d'Otologie et de Rhinologie," January 11, 1908.

A man, aged thirty-five, apparently in robust health, suffered from intermittent nasal obstruction, caused by turbinal hypertrophy. Eighteen days after galvano-cauterisation of the left inferior turbinal body severe hæmorrhage took place from the left nostril, chiefly into the pharynx. It was not controlled until the whole choana was methodically plugged. Several attacks of syncope followed, and, although bleeding did not recur, the patient died about thirty hours after the cessation of the hæmorrhage. In the absence of an autopsy it was thought that, besides the great loss of blood, fatty degeneration of the heart was the cause of the fatal syncope.

Chichele Nourse.

ŒSOPHAGUS.

Tilmann. —(*Œsophageal Diverticulum.* "Münch. med. Woch.," May 19, 1908.

The case of a man, aged forty-five, with difficulty in swallowing of five years' duration is described. He had lost 20 lb. in weight, and an œsophageal bougie was stopped at 10 in. beyond the teeth (it is not stated whether unchanged food was brought up at long intervals after its being swallowed). A Röntgen-ray examination was made while an emulsion of bismuth was swallowed, and a black shadow was seen to form at the height of the supra-sternal notch. When it had attained the size of a small apple it ceased to enlarge. An incision was made along the inner border of the sterno-mastoid from the level of the thyroid cartilage to the supra-sternal notch; the deep cervical fascia was then split, the tonsils were turned outwards and the thyroid gland inwards. The sac then appeared in the depth of the wound and was found to have a pedicle of about 1½ in. in length arising from the œsophagus at the level of the cricoid cartilage; the overlying muscles were dissected off and then the pedicle was seized and ligatured; the pointing mucous membrane was cleaned and then the muscular and other soft parts united by stitches. For two days nothing was given by the mouth, and nutrition was kept up by means of subcutaneous injections of salt solution. On the third day water, and on the fourth milk were given, and on the seventh normal food was taken. In regard to the ætiology, the author considers that the diverticulum began with a softening of the alimentary tube on the left side at the level of the cricoid cartilage, and that this yielded on account of mechanical obstruction to swallowing caused by the hard cricoid cartilage.

Dundas Grant.

EAR.

Connal, J. G. (Glasgow). —*Note on a Case of Purulent Otitis Media with Involvement of the Sigmoid Sinus; Operation; Ligature of the Internal Jugular Vein; Septic Abscess of the Lung; Recovery.* "Glasgow Med. Journ." April, 1908.

The patient was a girl, aged fifteen, who had suffered with a discharge from the right ear from infancy, which was gradually turning

worse. She consulted the author on May 4, 1907, on account of very severe pain and foul-smelling discharge from the right ear, with "shiverings." On May 5 there was another shivering, and on May 6 a very prolonged one with the temperature 105.6° F., pulse 140; granulations were present in the external meatus, and foul-smelling discharge. There was no swelling over the mastoid, but considerable pain on pressure. There was no sickness or vomiting. On May 7 the antrum and mastoid cells were freely opened; the sinus was first exposed and a considerable amount of pus was found over it and between it and the bone. The sinus was now opened and there was free hemorrhage which was controlled by packing. Next morning, May 8, the temperature was 98° F., but a few hours later it rose to 102.4° F., with another rigor. On May 9, the temperature being 104.2° F., the right internal jugular was ligatured and the lateral sinus exposed more fully. On May 10 and 11 there were slight rigors, then for a week the patient was considerably better, but on May 20 the temperature rose again to 104.6° F., and crepitant râles were detected in the left lung, where there soon developed a cavity with an offensive breath and expectoration. By June 1 the temperature was normal; the patient gradually improved in every way. She is now well, and the author states that the ear is dry; the wounds healed and there is no sign of any lesion in the lung.

Andrew Wyllie.

REVIEW.

Diseases of the Nose. By E. B. WAGGETT. Oxford Medical Publications, 1907; Henry Frowde, Oxford University Press; Hodder & Stoughton, London.

In this short epitome of "Diseases of the Nose," the author places before the reader in clear and succinct phraseology an account of the more common nasal lesions, their diagnosis and their treatment. The book is eminently practical, and bears the impress of having been compiled by one thoroughly conversant with rhinological technique. Many practical points are discussed in a clear and comprehensive style. The author's teaching in regard to after-treatment in cases of nasal operations is well worth studying in detail. With regard to his advice, that in performing Killian's submucous resection operation the incision should be carried straight away through the cartilage, we are not quite in agreement, as in the hands of one not accustomed to perform the operation the risk of making a "buttonhole" would be very considerable. The book will doubtless be found useful to the junior student of rhinology.

FIRE AT GORDON COLLEGE, KHARTOUM.

AN alarming fire broke out in the Wellcome Research Laboratories, Gordon Memorial College, Khartoum, on May 11. Before it was got under control considerable damage was done.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

GERMAN OTOLOGICAL AND LARYNGOLOGICAL SOCIETIES.

THOSE who have at all frequently to look up the literature of any given subject in connection with our special branches must have been struck by the remarkable number of references to the "Verhandlungen" of the "Deutsche Otologische Gesellschaft" and of the "Verein Süd-deutscher Laryngologen." Both of these important associations are still true to their scientific traditions, and the programmes of their recent meetings at Heidelberg have been marked as usual by novelty, interest and labour.

A new era has been started in the history of the second of these unions, the "Verein Süd-deutscher Laryngologen." viz., an important amalgamation with the "Deutsche Laryngologische Gesellschaft." The South German Society started its brilliant career in 1894 with a membership of 49 and has held meetings each year with increasing success, the number of members in 1907 amounting to 210, and including the names of many of the best non-specialists from towns well beyond the limit of Southern Germany; in point of fact, it could be looked upon as a highly representative pan-Germanic Association, in which the laryngologists from all parts of Germany could not but desire to be enrolled. It was at first proposed that a more extensive Society, the Deutscher Laryngologischen Gesellschaft, should be formed and draw it within its folds, but this idea was not universally accepted by the South Germans, who desired to retain some trace at least of the identity of the Society of whose success they were justly so proud. Owing, however, to the general feeling of good

will and to the judicious diplomacy of Professor Fraenkel, a *modus vivendi* has happily been arranged, and for the future the great Society will exist under the name, neither of the "Deutsche Otologische Gesellschaft" nor of the "Verein Sud-deutscher Laryngologen," but of the "Verein Deutscher Laryngologen." This happy amalgamation, which is quite in consonance with the spirit pervading the scientific societies in our own island, is of the happiest augury for our speciality. It may be mentioned that foreigners are not excluded from the membership, and there could be no better means of hastening international *entente* than by the reception of foreign members in scientific societies. We may well remember that if politics divides, science unites.

Among the more interesting incidents of the meeting of the German Otological Society was the discussion on the conservative treatment of chronic suppuration of the middle ear, introduced by Professor Körner, of Rostock. This paper, as also the general trend of the subsequent discussion, indicated a tendency to increasing conservatism in regard to these diseases. Another was a demonstration of the results of experimental injury of the labyrinth produced by prolonged exposure to sounds of different pitch, brought forward by Professor Siebenmann, of Basle, along with Dr. Joshii. It was extremely remarkable how exactly the pitch of the sounds appeared to determine the portion of the cochlea which suffered, the high-pitched sounds producing a lesion of the basilar portion, the low-pitched sounds of the apical. We hope to place the details of these experiments before our readers, but the mere facts as they stand would seem to offer powerful confirmation of the views advanced by Helmholtz. Our next issue will contain abstracts of the papers, but some we hope to reproduce in full. In the meantime, our present number contains a short account of Dr. Bárány's method of testing complete unilateral deafness, a problem which has been solved in part, and only with considerable difficulty, up to the present by Professor Bezold. If the reliability of Dr. Bárány's method is confirmed, as we venture to expect, most probably a great step will have been made.

The programme of the Laryngological Society included a paper by Professor Killian on "The Affections of the Accessory Cavities of the Nose in Scarlet Fever," a subject to which too little attention has hitherto been directed. Among others we may note the description of some of the more exceptional diseases, such as certain nasopharyngeal tumours of tuberculous and pseudo-leukæmic nature, described by Dr. Nager, and a leukæmic growth in the larynx by Dr. Meyer. The work of both these associations is well worth our study.

THE CLINICAL PATHOLOGY OF AURAL DISCHARGES.¹

BY WYATT WINGRAVE, M.D.

*(Continued from p. 310).**Bacteria.*

There are, perhaps, few organs which present a greater variety of bacteria in their discharge than does the ear, particularly in the chronic forms of disease. In acute stages, while the total number of micro-organisms present may be large, the varieties are generally few as in other regions.

Discharges may be examined for bacteria in two ways: by means of specially stained films and by cultivation on agar, serum, gelatine, bouillon and other media.

I shall refer chiefly to the evidence afforded by films or smears, which, if properly prepared, are of considerable diagnostic value in spite of the occasional difficulty in accepting the identity of a micro-organism solely upon its morphological and staining features.

Cultivations alone should not be relied upon, since they may afford but partial evidence of the bacteria present, and films, if stained by the three methods, may often reveal important bacteria which fail to grow on the selected medium.

From a record which represents a portion only of many years' experience I am able to give the following list of bacteria that were specially recorded in the course of 500 examinations of chronic discharges. It is by no means an exhaustive list, since it does not include every bacterial form which was present, but is fairly representative of those bacteria whose identity was provisionally established, and whose frequent occurrence, together with certain clinical and pathological associations, imparts to them a varying measure of interest. Except for the important addition of the spiral forms and their associates the list is similar to the one which I presented in 1903. They are as far as possible arranged in order of relative frequency, the sign + or - indicating a positive or negative reaction to Gram's stain.

<i>Staphylococcus (albus and aureus)</i>	.	.	.	+
<i>Diplococcus catarrhalis</i>	.	.	.	-
<i>Bacillus proteus vulgaris</i>	.	.	.	-
„ <i>subtilis</i>	.	.	.	+
„ <i>pyogenes fetidus</i>	.	.	.	-
„ <i>butyricus</i>	.	.	.	+

¹ A paper read before the Otological Section of the Royal Society of Medicine, May 2, 1908.

Torulæ, yeasts, etc.	.	.	.	.	.	.	+
Leptothrix	.	.	.	.	.	.	+
<i>Bacillus fusiformis</i>	.	.	.	.	.	.	—
<i>Spirochæta refringens</i> (<i>Spirochæta fortida</i>)	.	.	.	.	.	.	—
Streptococcus	.	.	.	.	.	.	+
<i>Bacillus mesentericus vulgaris</i>	.	.	.	.	.	.	—
„ <i>coli communis</i>	.	.	.	.	.	.	—
„ <i>pyocyaneus</i>	.	.	.	.	.	.	—
„ <i>tuberculosis</i>	.	.	.	.	.	.	+
<i>Micrococcus tetragonus</i>	.	.	.	.	.	.	+
Bacillus of influenza (Pfeiffer)	.	.	.	.	.	.	—
Streptothrix	.	.	.	.	.	.	+
Pneumococcus	.	.	.	.	.	.	+
<i>Penicillium glaucum</i>	.	.	.	.	.	.	—
<i>Aspergillus niger</i>	.	.	.	.	.	.	—

In comparison with the chronic varieties my record of *acute primary* cases is somewhat small, partly owing to the great difficulty in obtaining material during the early stages of the affection—a difficulty which doubtless most of us experience in hospital practice—and partly due to my not having kept a record of observation in acute cases until recently. As already stated the bacteria of acute discharges, although often present in large numbers, present but few varieties as compared with the chronic form. In fifty cases of acute primary discharge the following bacteria are recorded:

<i>Diplococci</i> occurred	.	.	.	.	.	37 times
<i>Diplococcus catarrhalis</i>	—	.	.	.	.	21
Pneumococcus	.	.	.	.	.	+ 9
Meningococcus	.	.	.	.	.	— 4
Gonococcus	.	.	.	.	.	— 3
Streptococci +	.	.	.	.	.	11 „
Staphylococci +	.	.	.	.	.	4 „
<i>Bacillus coli communis</i> —	.	.	.	.	.	4 „
„ <i>proteus vulgaris</i> —	.	.	.	.	.	3 „
Acid-fast bacillus tubercle +	.	.	.	.	.	2 „
„ „ pseudo-tubercle —	.	.	.	.	.	1 „
<i>Bacillus subtilis</i> +	.	.	.	.	.	2 „
<i>Spirochæta refringens</i> —	.	.	.	.	.	1 „
Bacillus of influenza —	.	.	.	.	.	1 „
Hoffman's bacillus +	.	.	.	.	.	1 „
<i>Micrococcus tetragonus</i> +	.	.	.	.	.	1 „

An arbitrary division into pathogenic and non-pathogenic

varieties is attended with many difficulties in the case of the ear, since the potentiality for mischief in this organ which so many reputed saprophytes possess renders such a classification unwise. As our immediate purpose is the subject of their identification and significance, they will be dealt with in groups which possess some special interest, irrespective of any orthodox classification.

Ear discharges are particularly rich in a variety known as *acid-fast*, a term which is applied to those bacilli which retain their stain (basic fuchsin) after washing in sulphuric acid. By further treatment with alcohol they all give up this stain to a greater or less extent, with the exception of tubercle and leprosy bacilli, which are therefore alcohol- as well as acid-fast.

Although this acid-fast property was at one time believed to be monopolised by tubercle, it is now recognised that a very large number of bacteria also possess it; but since many of them do not equally and constantly respond to the alcohol distinction, they thus possess a technical interest which is in some of them perhaps disproportionate to their clinical importance. Morphologically they fall into three distinct groups: (1) rod forms; (2) streptothricial; and (3) clostridial.

The first, or pseudo-tubercle group, embraces many bacilli which possess some morphological resemblance to tubercle bacilli, but are much more readily decolorised by either a longer exposure to acid or by alcohol—features which are characteristic of the smegma bacillus. They vary in length from 2.5μ to 4μ in length and occur in very numerous “clumps” or groups. Each cluster is, however, composed of far greater numbers than that which an ordinary tubercle group presents. They stain more evenly, are not beaded, and are definitely Gram negative. They occur in company with the *Bacillus butyricus*, acid-fast squames, and are generally attended with considerable fœtor. In this group should be included the *Bacillus subtilis*, which, although not recognised as an acid-fast organism, does sometimes exhibit that property in chronic aural discharges. It is easily recognised, being much thicker and longer than the tubercle bacillus. Further, it has a well-marked equatorial endospore and often occurs in chains. The endospore generally retains the fuchsin after an acid bath, but yields it after prolonged exposure to alcohol.

There are often many short bacillary forms which may show a slight acid-fast property should the acid bath exposure have been too short; but they can be easily differentiated in other parts of the field by their selection of the blue stain.

Streptothricial forms are recognised by their characteristic grouping in the shape of closely packed "felted" masses of branched filaments. But when solitary or in short segments their beaded appearance strongly resembles tubercle bacilli (1). They are, however, more slender, and, although often Gram positive, are readily decolorised by alcohol. There are also many streptothrices which are not acid-fast, but all are botanically allied to the tubercle bacillus (1), (22).

Clostridia are easily recognised by the presence of a large, deeply staining, equatorial spore. This bacillus is somewhat short, thick, swollen in the centre, and more readily yields its fuchsin to alcohol than any of the others. This is an important group, since it includes the *Bacillus butyricus*, which is one of the micro-organisms responsible for the production of butyric acid, so closely associated with the acid-fast property and with fœtor.

In addition to the foregoing there are many other forms of bacilli which may assume an acid-fast property in the ear, but such a power does not seem to be possessed by any coccal form. Apart from their differential diagnosis from tubercle, acid-fast bacteria are chiefly of interest from their frequency and number, and from what is known of streptothricial infection of other organs the association of this micro-organism with aural discharge is not without significance.

What is the explanation of this acid-fast property?

After many failures to cultivate acid-fast bacilli aëroically I felt that they might possibly be anaërobes, for it was pointed out by Pasteur, and in a recent article by Rist (22), that putrefactive changes in septic otitis were chiefly due to anaërobic bacteria. However, upon exposing films of bacteria (cultivated from ear discharge) to butyric acid, I found that several forms acquired acid-fast qualities in degrees which varied with the duration of exposure to the acid. As San Felici (25) had found that certain bacilli could be rendered acid-fast by cultivation in butter and lard, I added butyric acid to the culture media and succeeded after several attempts in obtaining bacilli which possessed acid-fast property in varying degrees. Butyric acid was selected from the striking resemblance which its odour bears to that of fœtid aural discharge, a feature which was emphasised by the smell of a bottle of cerumen and meatal accumulations which I had collected for experimental work.

A case was recently reported by Rolleston and Higgs (24), in which a diagnosis of tuberculosis was based to a certain extent

upon the presence of acid-fast bacilli in the sputum, but which was proved by the necropsy to be one of typical squamous epithelioma of the stomach. The bacilli upon which the diagnosis was made were subsequently found in groups on the surface of the growth and in the substance of sections. Individually they were unusually long, not beaded, and resisted decolorisation by alcohol for two hours. Cultivation attempts were unsuccessful. The case is interesting by reason of the association of acid-fast bacilli with squames undergoing keratinoid changes, and also by their occurrence in a region rich in butyric acid, conditions which are well marked in chronic antral discharges.

In a previous discussion Dr. Jobson Horne (10) suggested cerin as being the substance responsible for the acid-fast property. However that may be in the ear, it cannot hold good in the stomach, skin, lungs, cysts, etc., where cerin does not occur. My experience so far indicates that there are two distinct kinds of acid-fast bacilli—those which are so *naturally*, and those which become so *artificially*, or at all events as a result of their environment. The acid-fast property of the tubercle bacillus and the dead squamous epithelium of cysts and cholesteatomata is essentially intrinsic, while that of the bacteria under consideration is most likely fortuitous or extrinsic. Although endospores are often strongly acid-fast, it is interesting to note that coccæ forms, *e.g.* staphylococci, streptococci, diplococci, etc., never exhibit such a property naturally or artificially, even after prolonged exposure to butyric acid.

In attempting to explain the nature of this property the leading features may thus be summarised:

(1) Acid-fast bacteria are present in putrefactive conditions which are attended by the presence of butyric acid, *e.g.* ear, stomach, intestines, skin, etc., and also in butter and cheese.

(2) The acid-fast characters may be produced artificially by butyric acid.

(3) That acid-fast bacteria are generally associated also with the presence of squames and a distinct and characteristic factor.

The next group, important both clinically and histologically, consists of four diplococci: (1) *Diplococcus catarrhalis*; (2) pneumococcus (Fraenkel); (3) meningococcus; (4) gonococcus.

Perhaps around none other group of bacteria has there been such a conflict of opinion, both clinical and pathological. On the one hand we are told that 60 per cent. of healthy people carry pneumococci (11) in their throats, yet our experience teaches that

that micro-organism is not only responsible for serious aural troubles, but also for meningitis. It should, therefore, be considered a conditional parasite (11), and, although harmless in the mouth, of serious import if found in the ear.

It must not be supposed for one moment that it is possible to unequivocally identify a specific diplococcus in a film preparation taken straight from a discharge; such evidence must only be considered as *presumptive*; a *positive* diagnosis requires confirmation by culture in artificial media, under the most precise bacteriological routine. Still, notwithstanding their great mutability in size and shape, evidence of no small value is obtainable by simple and rapid methods.

The film should first be obtained by Gram's method, and if *positive* it is probably a *pneumococcus*, since the other three are Gram negative. Should it be capsulated, oval, or lanceolate, like two candle flames placed base to base, it is presumably the pneumococcus of Fraenkel. Too much importance must not be attached to the size nor upon the fact that it may be arranged in short chains of pairs (torula chains), since staphylococci and streptococci may appear as pairs also.

The pneumococcus is not easy to grow, the best medium being blood-agar at 37° C., when it appears as minute, discrete, translucent "dewdrops," very slightly elevated.

The colonies are accompanied by a marked change in colour of the surface medium, shown by a transformation of the oxy- into methæmoglobin, a property described by Eyre (6) as a pathognomonic feature. Further, it produces an acid reaction with dextrose, lactose, levulose, galactose, and maltose. It will not grow on gelatine at 20° C., and when artificially grown has no capsule and is often moniliform.

The remaining diplococci are Gram —, but the commonest of all of them is the *Diplococcus catarrhalis*, even more so than the pneumococcus. It is by far the largest, and occurs as a well-defined spherical diplococcus except when dividing, it then being "chestnut-shaped." It is not usually encapsuled, but often occurs in chains. It will grow on almost any medium, especially on gelatine at 20° C.; in fact, it is the only Gram — diplococcus which does so (31), (29), (8). Finally it produces an acid fermentation with all the sugar media and grows well on nasgar at 25° C.

My own experience is that Gram + diplococci are of much less frequent occurrence than Gram —, not only in acute, but also in chronic inflammation and in operation wounds of the ear.

Should the diplococcus not grow on gelatine and be Gram — it is either *meningococcus* or *gonococcus*. Morphologically the *meningococcus* is generally very small, but in cultures may assume a large size. When young it is faceted or “chestnut-shaped”; older forms are spherical. It is not encapsuled. It takes carbol thionin readily, while its occasional intra-cellular position is not peculiar. The best medium for its culture is nasgar at 37° C., on which it grows as smooth, translucent, circular discs, and is the only Gram diplococcus to do so. It causes acid fermentation with all saccharine media except sucrose. Whether this is the micro-organism responsible for epidemic cerebro-spinal meningitis there still seems some doubt.

The *gonococcus* is almost persistently faceted, reniform, or chestnut-shaped. Its intra-cellular character is marked by four or more occurring in every fourth leucocyte. In size it is smaller than *Micrococcus catarrhalis*, but generally larger than pneumococcus and meningococcus. It grows on blood-agar and nasgar, the latter at 22° C. Finally it causes acid fermentation with glucose and galactose only.

While fully realising the difficulties to the identification of any micro-organism, especially in the case of a diplococcus, it is not too much to say that a reasonably reliable and presumptive diagnosis may be obtained from the morphological evidence of a well-stained film. Confirmatory evidence by culture, however, must always be employed in the event of serum or vaccine treatment being entertained. Much assistance may be afforded by attention to the following points:

(1) Carefully note the Gram reaction.

(2) A chain of moniliform grouping is not necessarily streptococcal.

(3) That encapsulation is not always a reliable distinction, and that any variety may be intra-cellular.

(4) That too much reliance must not be placed upon the size and shape of individual diplococci, since great variation occurs in the life history of each type.

(5) That it is better to be guided by average than by solitary examples, to remember that every diplococcal form in the ear should be regarded with suspicion, and that the smaller it is the more serious its significance (11).

Spirochaeta, etc.—I will now direct your attention to a group of micro-organisms which, although familiar in the throat and other situations, have not hitherto been identified as attendants of aural

lesions; and it is only within the last eighteen months that I have established their intimate association.

Spiral forms similar to, if not identical with, *Spirochaeta refringens* (*Spirochaeta buccæ*, *Spirochaeta dentium*) occur in large numbers in chronic and occasionally in acute discharges from the middle ear, invariably accompanied by spindle-shaped bodies known as *Bacillus fusiform* (*Bacillus hastilis*, bacillus of Vincent), etc. They are not readily seen in thick discharges unless deeply stained, being either hidden by the matrix granules or failing to be visible from their weak affinity for ordinary stains. Since writing my first account of them (33) I find that they can be readily demonstrated by the following simple method: After fixing by heat or alcohol the film is placed for ten minutes in a 1 per cent. solution of gentian aniline violet. It is then washed in water and passed through Gram's iodine solution for one minute, washed in water, and finally counter-stained for five minutes in a carbol fuchsin (0.5 per cent.). Borax blue may be used instead of fuchsin as it specially selects the fusiform bodies. Azure blue and Giemsa's solution demonstrate both forms, but they are very expensive and not so reliable as the first method, which is an ordinary Gram without the alcohol bath, this being contra-indicated owing to both bodies having a Gram negative reaction.¹

These bodies are nearly always associated with a peculiar fœtor differing somewhat from the butyric smell, being more like that of strong Roquefort cheese, a peculiarity which was specially noticeable in the pus from cerebral abscesses which contained them in large numbers.

The *spiral* form varies considerably in size and shape. Usually it is long, slender and undulating, with from four to six coarse unequal curves, and pointed at each end. When blunt it is probably due to fracture. Not infrequently, especially in a dense matrix, it may be straight, looped, curved or coiled. It is apparently homogeneous throughout, of a lavender or pale bluish colour when small, but when larger and thicker it stains more deeply. In thin films they may be seen even unstained by reason of their refractile property. They occur singly or in thick felted masses. Compared with the rigid corkscrew curls of the *Spirochaeta pallida* this spirochaeta more resembles an eel or a whip-lash, having coarser, fewer, and less regular turns. I have never seen

¹ For these and other faintly staining bacteria I have found that potassium permanganate (1 per cent.) makes an excellent substitute for iodine, in combination with gentian aniline violet.

it segmented like the *Spirochaeta sputigenus* of Miller or the common bacillus of Koch. It is evidently an undulating form of a straight filament, and its variation in shape depends upon its age, the density of the medium, and the form it possessed at the moment of fixation. The *fusiform* body is also Gram negative, but as a rule takes basic stains more readily than the spirals and is always a more prominent feature in films. It also varies in size and shape, being from $5\ \mu$ to $25\ \mu$ in length by $1\ \mu$ to $3\ \mu$ in thickness at its centre, from which it tapers to each extremity. It occurs singly or in pairs "end to end," and is often marked by two or more darkly staining granules with a clear interval near the equator. Occasionally shorter and blunted forms may be seen, but it can scarcely be said to resemble a bacillus. Not infrequently it is bent like a "boomerang."

So far I have not succeeded in growing either form aëroically; small fusiform bodies were, however, cultivated by deep stab inoculation in agar, but not the spiral form. Both, however, have been grown anaëroically on ascitic agar by Tummeliffe (32), the fusiform bodies appearing on the second or third day followed by spirals on the fifth.

From the fact that these two bodies are almost inseparable companions, that intermediate forms can be seen in films and their transition apparently traced, it is reasonable to assume that they represent phases in the life-history of one organism. They are evidently not bacilli, but belong to the Trypanema family, and although occurring as saprophytes in connection with decomposition processes in many parts of the body, in view of the fact that I found them in large numbers, not only in the mastoid antrum but also recently in cerebral and cerebellar abscesses under Mr. Stuart-Low's care, I feel that such an association affords strong presumptive evidence of their possessing a pathogenicity not quite in harmony with their saprophytic reputation.

In many cases, too, of chronic disease of the nasal accessory sinuses I have found them to be the predominant micro-organism. Their occurrence in pyorrhœa alveolaris is well known. During the last eighteen months they have been present in about 30 per cent. of antral discharges of the chronic fetid type, and often afford such a striking feature in the film as to suggest that it must have been taken from the mouth. They have been found in hospital gangrene, acute and chronic forms of tonsillitis, noma, vaccine pustules, cancer, smegma, balanitis, vaginitis, venereal warts, etc. (14), (7), (27). The *Spirochaeta pallida* of Schaudinn I have not yet seen in antral discharge.

Leptothricial forms are frequently associated with the foregoing spirals, in company with torulae, yeasts, etc., which are generally grouped as "throat" organisms. They are specially numerous in the profuse non-purulent discharge referred to later.

Many varieties of *streptococci* are described, but in aurial discharge they may be considered under two types: the *longus* (*Streptococcus pyogenes*), which occurs in long chains; (2) *Streptococcus brevis*, which occurs in short chains. The *Streptococcus longus* is held to be the pathogenic form, while the *Streptococcus brevis*, which is commonly found in the mouth and throat, is said to be without pathogenic properties.¹ They are both Gram +. The individual cocci are somewhat larger than the staphylococcus, they often appear diplococcal when in chains, but their Gram reaction affords a reliable differentiation.

There is a minute variety, the *Streptococcus conglomeratus*, which, though not common in ear discharges, is by no means rare in acute tonsillar affections, and should therefore be looked for in acute suppuration of the middle ear, since it is said to possess considerable virulence (18).

A *Streptococcus mucosus* has recently been described by Schottmüller (26) as responsible for a large proportion of cases of acute suppuration of the middle ear. It is said to occur in short chains like *Streptococcus brevis*, but composed of diplococcal elements enclosed in a delicate capsule which can be demonstrated by acid thionin stain. Like the other streptococci and the pneumococci it is Gram +, but differs from the latter in its shape. Dr. Dundas Grant drew my attention to its literature a short time ago, but my experience in its search, so far, has not enabled me to form any definite conclusion as to its occurrence in this country.

Staphylococci are easily recognised by their grouping. They are Gram + and smaller than streptococci, but whether *aureus*, *albus*, or *cereus* cultivation alone can decide. Their pyogenic powers are fully established, and they are the most easily grown of all the pathogenic bacteria.

The *Bacillus proteus vulgaris* is of interest chiefly from its frequent occurrence in chronic discharges, being present in quite 50 per cent. of examinations. Like the colon bacillus it stains with difficulty unless previously treated with iodine or potassium permanganate. It is Gram — and about $3\ \mu$ in length (with a central constriction), but may grow into long leptothricial threads. It is

¹ Marmorek, however, holds that length of chain is variable, and Widal has shown that the non-pathogenic forms from the mouth, when cultivated with *Bacillus coli communis*, become pathogenic (18).

nearly always associated with fœtor, and has the reputation of being a powerful ptomaine producer (11).

The *Bacillus subtilis* is very common and one of the largest bacilli found in the ear, being from 4μ to 6μ in length. It is easily recognised by its size and equatorial spores so well differentiated by the fuchsin and borax blue stain. It is Gram + and occasionally exhibits the acid-fast property. It is also associated with fœtor.

Streptothricial forms are not uncommon, and have already been referred to under the acid-fast group; most of them, however, do not possess this property, which is most probably fortuitous. They are all Gram + and also Neisser +, and can be recognised by their peculiar grouping as felted masses of thin, beaded, and often branching filaments, showing irregular staining. The characteristic clubs of *Actinomyces bovi* are not seen.

The *bacillus of influenza* (Pfeiffer) has the reputation of playing an important part not only in acute exacerbations of middle-ear suppuration but also in primary attacks—an association first demonstrated by Pfeiffer himself. Owing to its feeble staining reaction it is easily overlooked, but if treated with gentian aniline violet and iodine or potassium permanganate it is readily seen in acute cases, especially those complicated by osteo-myelitis. It appears in irregular groups or "flocks" of minute straight bacilli about 1.5μ in length, sometimes in pairs but never in chains. It is Gram — and also strongly selective of fuchsin, a striking feature when used in combination with borax blue.

The subject of bacteria must not be dismissed without reference to torule. They are by no means uncommon in chronic cases, but are probably of but slight pathogenic importance. They can be easily distinguished from cocci by their large size. Although spherical when fully developed they often appear like "double chestnut," or in chains. I recently examined a case of acute discharge with a large perforation (about the twenty-first day) in which they were present in large numbers without any other bacteria. The patient, a youth, was also the subject of tonsillitis and naso-pharyngeal trouble, his throat being infested by the same micro-organism which was shown in both films and cultures.

Chemically and microscopically the *matrix*, or fluid part, of a discharge varies considerably according to its origin. In acute cases at first it is usually clear or slightly opaque and contains mucin and globulin. Mucin predominates in the catarrhal type and is converted into a homogeneous, readily staining film by

alcohol, but is precipitated as minute granules if fixed by acetic acid. Globulin, when heated or fixed by alcohol, becomes stringy. In acute membranous or plastic exudates fibrin is formed spontaneously from fibrinogen in the form of regular interlacing filaments, which stain deeply by gentian violet.

In chronic as well as in the later stages of acute cases the matrix is generally opaque owing to granules of various size and shape, which stain readily and obscure the film. The smallest are derived from degenerated cytoplasm, while the larger and more deeply staining particles are nuclear derivatives. Others may be from broken-down bacteria.

When squamous epithelium is present the minute particles are very numerous, being probably keratin granules, and stain deeply with Gram's reagent. Mixed with them are highly refractile fat spheres selecting osmic acid and sudan iii. When in the leucocyte they constitute "sudanophiles."

Cholesterin crystals, in the shape of flat rhombic plates and feathery crystals of fatty acids, are characteristic of old desquamative changes as in cholesteatomata. Bone particles are easily recognised by their hard grittiness and by the breaking of cover-glasses in preparing the film, but are by no means common. Cerein is recognised by its bright yellow spheres or masses in unstained films, and by its selection of fuchsin and eosin when stained. The more acute the process the clearer the matrix, while the older and more chronic the discharge the more opaque and granular is the film.

In some acute primary and acute exacerbations coarse spirals, similar to Curschmann's in asthma, are occasionally seen. Although smaller than those occurring in sputum they conform to the classical description in possessing a deeply staining core, surrounded by a pale transparent envelope.

SUMMARY.

Acute suppuration of the middle ear in its mild (catarrhal) form is characterised by sharply defined leucocytes (polymorphs), very few lymphocytes and tympanic epithelium, singly or in clusters. A Gram-diplococcus (*Micrococcus catarrhalis*) most frequently occurs, occasionally associated with mouth organisms such as spirochaete and torulae.

In the severe or suppurative type leucocytes and erythrocytes predominate at first with a few lymphocytes. Later the ery-

throcytes disappear, while large mononuclear leucocytes become well marked on about the third or fourth day. Tympanic epithelium occurs early but disappears until healing commences. The cytoplasm of the leucocyte becomes granular and ill defined, while the nucleus stains faintly and is distorted and fragmented towards the second week. In infants lymphocytes are much more numerous than in adults.

Many bacteria are found in acute discharges, including "throat organisms," but the more prominent are *Diplococcus catarrhalis*, *Diplococcus pneumoniae*, *Streptococcus brevis* and *longus*.

Acute external otitis may occur in several degrees from an acute desquamative process involving the superficial structures only, characterised by nucleated squames, gland epithelium and leucocytes, to abscess or purulent cellulitis involving the deep structures, when leucocytes and lymphocytes will be abundant, accompanied by streptococci, diplococci, staphylococci, and also rarely gonococci.

When the disease assumes a chronic form the discharge is "watery," lymphocytes and leucocytes being few or wanting. Epithelial squames are plentiful, and among many varieties of bacteria the *Penicillium glaucum* is prominent.

The conditions responsible for chronic discharge from the middle ear—comprehensively termed chronic suppuration of the middle ear—are so varied that pathological accuracy demands some differentiation.

As most frequently happens "granulating tissue" is responsible for the pus. Evidence of this is afforded by the presence of leucocytes of all kinds, large, small, mono- and polynuclear, normal and degenerated, but especially by *lymphocytes*, which are very numerous, while epithelial cells are not uncommon. Bone disease may be marked by myelocytes or osteoblasts.

Cholesteatoma is indicated by the presence of closely-packed acid-fast squames with or without bacteria. This latter may appear to be an unnecessary distinction, but it is really one of great importance, especially when the cells are of antral source, for a septic cholesteatoma in that situation affords a stronger reason for radical measures than a non-septic one—an interpretation which is amply supported by examination of antral contents removed by operation.¹

Among the many varieties of chronic discharge my experience

¹ While examining antral contents removed by the mastoid operation several specimens of infection by mycelial threads have been met with, the squames being mixed with a beautiful labyrinth of straight, tortuous and often branching filaments of three distinct types—leptothricial, streptothricial, and mycelial.

has taught me that there is one which deserves special attention. It is generally very profuse, intermittent, extremely fœtid, opaque, and of the consistence of cream. On examination it is found to be entirely free from cells, either epithelial or leucocytic, but consists entirely of throat organisms in an albuminous matrix. Strictly speaking it is therefore not true pus, but merely a polymicrobial emulsion. It appears as if the imperfectly drained and ventilated antro-tympanic cavity had assumed the role of a cultivating chamber or "septic tank" containing bouillon in which different families of bacteria abundantly flourished.

By the term "throat organisms" is meant a group of bacteria which are nearly always to be found in the mouth and faucial area, either in health or disease, but do not occur in the healthy ear. It includes *Spirochaeta fetida*, *Bacillus fusiformis*, leptothrix, *Bacillus subtilis*, *Bacillus proteus vulgaris*, *Penicillium glaucus*, together with a large variety of moulds and yeasts which may be potentially pathogenic, but for the time are leading a saprophytic existence in the throat.

In this group of cases, which is by no means a small one, a highly "septic" state of the mouth, fauces or nasal cavities invariably coexists, the commonest form being pyorrhœa alveolaris and chronic lacunar tonsillitis—affections which are probably not only responsible for the original infection, but also for repeated renewals of the aural trouble.

With such a discharge, whose most striking feature is the large number of spiral and fusiform bodies with practically no leucocytes or lymphocytes, the existence of an active granulation surface may unhesitatingly be excluded. There is a passive yet highly septic cavity which calls not only for active aural measures, but also for attention to the original source of infection. It is the differentiation and identification of such a condition as this that will fully repay the extra trouble of a microscopical examination of the discharge. Such cases further illustrate the necessity for a bacteriological examination of the naso-pharynx, which I have found in healthy subjects to be sterile, but invariably septic in all acute and chronic infections of the antro-tympanic cavity.

It is important to note that in *acute exacerbations* of the chronic suppurative form the discharge somewhat resembles the primary acute. Freshly exuded leucocytes prevail with a diplococcus, Pfeiffer's bacillus or streptococci, and diplococci. Lymphocytes are often numerous, and myelocytes may be seen should there be any bone complication. In the course of a few days mononucleated

leucocytes become plentiful, with a few more lymphocytes and nucleated squames.

In tuberculous examples of this group there will also be present the specific bacilli. But tuberculous discharge, when *chronic*, is of a very distinct type. It is thinner or watery in character, with white granules or flakes. Lymphocytes are plentiful, with large epithelioid and even "giant cells." Leucocytes are far less numerous than in non-tuberculous, except during an *acute* period due to supplementary infection, when the discharge is much denser and distinctly purulent in type. The presence of minute amorphous granules and "bone grit" is also a marked feature of tuberculous discharge. Giant cells are rare unless the specimen be taken directly from its source. As in tuberculous sputum *Micrococcus tetragonus* is a frequent attendant. When the process is mixed, as usually happens, many varieties of bacteria will be present and attended by marked fœtor.

In *acute osteo-myelitis*, the discharge contains, in addition to leucocytes and lymphocytes, considerable numbers of large mono- and multi-nucleated myelocytes, which are easily distinguished by their size, shape, nuclei and staining. There may be many bacteria present, but few varieties, diplococci and streptococci predominating.

Chronic desquamative external otitis may be either moist or dry. In the former many bacteria are present, with but few leucocytes and many squames, old and new. The commonest bacteria are staphylococci, *Bacillus butyricus*, *Bacillus proteus vulgaris*, mycelia and torulae. In the dry form only scales occur with *Aspergillus niger*, *Penicillium glaucum*, *Bacillus butyricus* and *Bacillus proteus vulgaris*. In every form acid-fast squames are a very prominent feature.

CONCLUSION.

While fully conscious that these few observations merely touch the fringe of the subject, I trust that they will be sufficient to demonstrate the promises and possibilities which are afforded by an examination of aural discharge. That such evidence is of real and practical value I have now less hesitation in advancing than I felt five years ago, being reinforced by experience gained in the interval, upon an abundant supply of material, rendered doubly valuable by the hearty co-operation and interest of my colleagues.

That clinical pathology is now becoming justly appreciated is shown by the many useful publications which are available. Sputum, blood, urine, vomit, fæces, cerebro-spinal fluid, and discharges from many sources are most exhaustively dealt with, but aural discharge—one of the most prominent features of our work—has been practically ignored.

I therefore venture to submit that a careful and systematic examination of an aural discharge will reveal much of the nature of the morbid process which it accompanies; that it should be cytological as well as bacteriological, and that it should constitute an essential part of our clinical routine.

REFERENCES.

- (1) ABBOTT.—“Acid-fast Bacilli,” “Principles of Bacteriology,” 1906.
- (2) ABBOTTS and GILDERSHAIN.—*Brit. Med. Journ.*, 1, 1902.
- (3) ANDREWES.—“Aërial Microbes,” *Lancet*, 1902.
- (4) CROOKSHANK.—“Spiral Form of Cladothrix,” “Text-book of Bacteriology,” 1905.
- (5) ESCHLE.—*Deutsch. med. Wochenschr.*, Berlin, 1883, ix, p. 441.
- (6) EYRE.—“Pyogenic Activities of the Pneumococcus,” *Lancet*, February, 1908.
- (7) GOADBY.—“Spirochæte and Aural Infection from Mouth,” *ibid.*, March, 1907.
- (8) GORDON.—“Meningococcus Culture,” *Brit. Med. Journ.*, 1907.
- (9) GULLAND.—“Rôle of the Lymphocyte,” *ibid.*, 1904; also MUIR, BEATTIE, DRYSDALE, FERGUSSON, HOUSTON, MCCALLUM, MELLAND.
- (10) HORNE, JOESON.—*JOURN. OF LARYNGOL., RHINOL., AND OTOL.*, 1903.
- (11) KLEIN.—“*Bacillus proteus vulgaris* and Ptomaine Producer,” *Lancet*, 1904.
- (12) KLOTZ.—“Evidence afforded by Aural Discharge,” *Brit. Med. Journ.*, February, 1908.
- (13) MCEVEN.—“Pyogenic Diseases of Brain and Spinal Cord,” 1893.
- (14) MCLENNAN.—“Spirochæte,” *Brit. Med. Journ.*, May, 1906, November, 1907.
- (15) MILLER.—“Bacteria of Middle-ear Disease,” *ibid.*, December, 1907.
- (16) MILLIGAN.—*Brit. Med. Journ.*, October, 1907.
- (17) MILLIGAN.—*Ibid.*, March, 1908.
- (18) MUIR and RITCHIE.—“Manual of Bacteriology,” 1897.
- (19) NOURSE.—*Brit. Med. Journ.*, October, 1907.
- (20) OSLER.—“Pneumococcal Infections,” *Med. Soc. Lond.*, December, 1907.
- (21) RANKIN.—“Meningococcus,” *Lancet*, 1907.
- (22) RIST.—“Anaërobæ and Fætid Otitis,” *Brit. Med. Journ.*, 1901.
- (23) ROBSON, MAYO.—“Clinical Diagnosis,” *ibid.*, March, 1906.
- (24) ROLLESTON and HIGGS.—*Ibid.*, June, 1907.
- (25) SAN FELICI and METSCHNIKOFF.—*Ibid.*, 1904.
- (26) SCHOTTMÜLLER.—*Münch. med. Wochenschr.*, 1903, xx, xxi; 1905, xxx.
- (27) SHENNAN.—“*Spirochæta refringens*,” *Lancet*, March, 1906.
- (28) SIMIONESCU.—“Bacteriology of Fætid Otitis,” *Arch. Gén. de Méd.*, August, 1906, and *Brit. Med. Journ.*, t.p., 1907.
- (29) SMITH, MACELEN.—“Otogonous Sepsis,” *Brit. Med. Journ.*, 1906.
- (30) SNYDERCKER.—“Microscopical Examination of Aural Discharge,” *Archiv of Otol.*, xxx, No. 6.

- (31) SYMMUS and WILSON.—"Meningococcus," *Brit. Med. Journ.*, 1907.
- (32) TUNNICLIFFE.—"Bacillus fusiform," *Journ. of Infec. Dis.*, 1906.
- (33) WINGRAVE.—"Spirochaeta in Aural Discharges," *JOURN. OF LARYNGOL., RHINOL., AND OTOL.*, 1907.
- (34) WINGRAVE.—"One Hundred Cases of Middle-ear Suppuration," *ibid.*, 1903.
- (35) WRIGHT, A. E.—"Bacillus subtilis," *Lancet*, 1904.

NOISE APPARATUS FOR THE DETECTION OF UNILATERAL DEAFNESS.

BY DR. ROBERT BÁRÁNY,

Assistant in the Aural Clinic of the University of Vienna.

THE author has demonstrated a noise apparatus made according to his instructions by F. Reiner and Co., of Vienna, which has been protected by patent. By means of clockwork a hammer is set in movement so as to strike upon a membrane, and the noise thereby produced is conducted directly into the ear by means of an aural speculum. The following is the object of this apparatus: the detection of unilateral deafness is still quite uncertain in spite of remarkable means of investigation by Bezold, which in any case demand a very long time. The writer had the idea of excluding the sound ear by not merely closing the meatus but also by setting up in it such a noise that the ear was made deaf for any other sonorous stimulation. While this is in use the ear which has to be investigated can be tested in regard to its auditory power.

A theoretical objection to this might be the possibility that the noise set up in the sound ear might increase any slight amount of hearing power in the diseased ear. According to the writer's investigations this is, however, not the case, and furthermore, a small residua of hearing power can be detected. In this way it is possible to differentiate total unilateral deafness from vowel hearing. The impairment of the tested ear, if it has still some hearing power, shows itself only by the examiner having to speak in a somewhat louder tone of voice. A person with normal auditory power on both sides hears conversational speech at a distance of several metres, and whispered speech at least one metre off. If he is totally deaf on the side of the ear under investigation he hears neither the loudest speech nor the loudest noises. If such noise apparatuses are inserted one into each ear of a normal individual, he is made thereby totally deaf and he perceives neither speech nor noises, however loud.

Dr. Bárány considers this new apparatus presents certain advantages over the one which he previously used, as it is very workable and the noise produced is always of the same loudness. By its means the diagnosis of unilateral deafness, which is of such importance, can be made with absolute certainty in a few seconds.

At the present time Dr. Dillon is engaged in the University Clinic in testing this method on a large number of clinical cases.

A FATAL CASE OF CAVERNOUS SINUS THROMBOSIS FOLLOWING CHRONIC PURULENT OTITIS.

By HENRY HANNA, M.A., B.Sc., M.B., B.Ch.

No apology is necessary I think for recording the clinical history of this case, since it presents one or two features of unusual interest. One was able moreover, by *post-mortem* examination to verify and amplify the facts of the pathological finding.

The patient, R. F——, female, aged twelve, had suffered for the past seven or eight years from a neglected suppuration of the left ear. On presenting herself for examination in the Ear Clinic of the Royal Victoria Hospital, Belfast, she complained of pain in the ear, with giddiness and tenderness along the mastoid process. There was no evidence of swelling or tenderness along the course of the internal jugular of the same side. She looked ill.

On admission there was a purulent antral discharge.

The ear was syringed with warm borie lotion, instillations of peroxide of hydrogen were carried out, and some leeches were applied over the mastoid process pending the granting of permission by the parents to perform operation.

During the night she showed signs of delirium, and vomiting occurred after drinking some milk.

Temperature on admission was 102·6° F., pulse 132. Next day she had a rigor lasting ten minutes and complained of pain in the back of the head; on raising herself from the pillow she felt lightheaded and said she was afraid she was going to fall out of bed towards her left side. Eyes normal.

A radical mastoid operation was carried out on the same day; the mastoid cells were one mass of foul stinking pus and granulations, and the entire roof of the middle ear was necrosed away, exposing the dura mater. The lateral sinus was such as to contra-indicate an incision being made into it.

All diseased tissue was removed as thoroughly as possible, the

cavity was cleaned and lightly packed with iodoform gauze, and the retro-aural wound was kept open in view of further operative interference should such be deemed necessary.

The wound was dressed daily with peroxide of hydrogen and gauze, and following the operation the temperature fell to normal and remained so for the next four or five days, when it suddenly went up to 104 F.

As the condition of the patient for the next fourteen days contra-indicated the probable existence of abscess-formation in the brain, but pointed to meningeal irritation and septic absorption, attention was directed to the local and general treatment. No optic neuritis was present.

On the twenty-second day after operation the patient became very dull and irritable, marked symptoms of word-deafness set in, but no paresis or focal symptoms in the limbs, face or eye-muscles could be made out.

Food was refused; next day œdema of the lids and conjunctiva of the left eye set in with proptosis and restricted movements of the globe. Some hours later the right eye showed a similar condition, coma set in, and patient died early on the following morning.

Post-mortem.—The dura mater corresponding to the gap in the roof of the middle ear was thickened and infiltrated with pus, but the diseased area was limited to an area the size of a shilling. The extreme edge of the left lateral hemisphere of the cerebellum showed a slight area of diseased and adherent dura mater.

There was well-marked purulent cavernous sinus thrombosis. No trace of abscess could be discovered in any part of the brain-substance.

LARYNGOSTOMY AND TRACHEO-LARYNGOSTOMY IN THE CURE OF SEVERE CHRONIC STENOSIS OF THE LARYNX OR TRACHEA, ESPECIALLY WHEN CICATRICIAL.

BY DES. SARGNON AND BARLATIER,
Of Lyons.

(Translated by MR. CHICHELE NOURSE.)

Definition.—Under this name we designate the operation which consists in laying open the larynx and the upper part of the trachea, in such a way as to insure a permanent opening or a temporary one of long duration.

History.—The merit of the systematic application of laryngostomy to the treatment of cicatricial stenosis of the larynx is due to Professor Killian (of Fribourg, in Brisgau), who operated thus, in 1906, on three cases of severe stenosis of the larynx, one of which, in an adult, was the sequel of typhoid fever.

No records of these cases have been published, but Killian showed the T-shaped cannulæ covered with rubber, used to the end of the treatment, at the meeting of South German Laryngologists, in 1906. However, before Killian, laryngostomy had been performed in other cases. The first within our knowledge was an operation done by Professor Ruggi in January, 1898. This case, as Professor A. Canepile (of Bologna) has kindly informed us, concerned a child aged five, suffering from recurrent papillomata of the larynx, who was unable to do without the cannula after tracheotomy. Laryngostomy was performed on January 26, 1898; the parts were dilated and a cure resulted after three months' treatment. The case was published by M. Nasi in the journal *Clinica Chirurgica* of April 30, 1899, again recorded in June, 1900, in the *Laryngoscope*, and finally in the *Internationales Centralblatt für Laryngologie* of April, 1901. The same case was communicated to the Congress at Rome in October, 1907, with others similar, by Professor Canepile.

At Lyons a laryngostomy was done in June, 1899, by Professor Jaboulay. In this case, tracheotomy was performed in 1897 by Dr. Garel, then laryngo-fissure on two occasions by M. Jaboulay, before the laryngostomy. There was a complete recurrence, the larynx not having been dilated, and the patient ultimately underwent laryngectomy. Since that time other laryngostomies have been performed. In Italy two other patients were operated upon by Professor Ruggi. One case was that of a young girl, aged sixteen, also suffering with recurrent papillomata of the larynx, who had been treated successively by laryngo-fissure, excision and galvano-cantery, and dilatation by Schroetter's tubes without any success. The patient had almost complete closure of the larynx. A cure was obtained after laryngostomy followed by a plastic operation on the trachea. In Ruggi's second case, a man, aged twenty-eight, had worn a cannula for eight years, owing to a stenosis of the larynx, probably syphilitic in nature, which had resisted dilatation. Laryngostomy resulted in a definite cure.

A third Italian case belongs to Professor Canepile. A young man, aged twenty, with laryngo-tracheal stenosis from perichon-

dritis, still required a cannula, in spite of dilatation by intubation and by Schroetter's instruments. Cure by laryngostomy.

At the Congress at Rome, where all these cases were related by Canepele, MM. Melzi and Cagnola (of Milan) reported two cases of laryngostomy, which they performed successfully in 1906 (*Arch. Ital. di Otologia*, 1908, fasc. 2).

At the Belgian Congress of Laryngology, in June, 1901, M. Béo advised plugging of the laryngo-tracheal conduit without suture, after laryngo-fissure, if there was any fear of recurrences after an excision, more or less complete, of the papillomatous masses. It was really laryngostomy after the excision of papillomata that he advised, but he drew no attention to any case which he had thus treated. In 1895 Schiffers published a case of cicatricial stenosis treated and dilated by laryngo-fissure, the wound being left open and allowed to close spontaneously. This procedure was intermediate between laryngo-fissure and laryngostomy rather than a true laryngostomy. At the Congress of Medicine at Lisbon in April, 1905, Professor Grossmann, of Vienna, advised that the wound after laryngo-fissure should be kept open, in order to allow of the treatment of malignant tumours of the larynx by the application of the X rays.

It is in France that until now the greatest number of laryngostomies have been performed; the merit of having demonstrated the advantages presented by this operation belongs to the neighbourhood of Lyons. Our personal statistics include twelve cases of laryngostomy operated on in conjunction with MM. Rabot, Garel, Vignard, Hau, and Bonnamour.

We published five of our cases at the Congress of Laryngology at Paris in 1907. The oldest of these dated back to November, 1905, and were operated upon by MM. Rochet, Garel, Rabot, Nové-Josserand, Durand, and Thévenot. Seven others which belong to us are more recent.

Our patients operated on comprise:

(1) Eight children wearing tubes after tracheotomy, amongst whom two were operated on away from Lyons, viz. one at Paris with Professor Marfan, and one at Marseilles with MM. Fournier and Piery.

(2) An adult operated on at Val-de-Grâce for laryngeal contraction, consecutive to laryngo-typhus, with Professors Sieur and Rouvillois; a child wearing a tube, operated on at Angers.

(3) A case of thick membranous stenosis, traumatic in origin (knife-wound), which had resisted laryngo-fissure, and was ope-

rated upon recently by Professor Delsaux (of Brussels) and one of us.

(4) A case of recurrent papillomata, operated on by M. Beco (of Liège) and one of us.

We shall refer again later to these cases in order to indicate the results obtained.

Besides our personal cases, we know in the Lyons district of the following :

Three cases of cicatricial stenosis of the larynx, operated on by Professor Collet. The first of these was published by M. Collet at the Congress of Laryngology at Paris in May, 1907.

Three cases operated on at St. Étienne by MM. Viannay and Descos. One of these cases was shown at the Society of Medical Sciences of St. Étienne by MM. Descos, Viannay and Mandy on January 15, 1908 (*Loire Médicale*, February 15, 1908).

In order to complete the enumeration of the cases of laryngostomy which we know of, although unpublished, we will mention also: 1 case recently operated on by M. Broca, and 2 cases by Sieur and Rouvillois; 6 other cases recently operated on at Brussels (2 by M. Janquet, 1 by M. Goris, 1 by M. Cheval, 2 by MM. Beco and Delsaux); 2 cases operated on by Professor Pieniazeck; 1 case operated on quite recently at Ghent by M. Broeckaert. Thus, there exist actually within our knowledge: 14 laryngostomies performed in the Lyons district, including Professor Jaboulay's case; 5 cases operated on at Paris (Marfan, Sargnon and Barlatier, Sieur, and Sargnon, Broca Sieur and Rouvillois; 1 laryngostomy done at Marseilles (Fournier and Sargnon); the case was shown at the Medical Society of Marseilles on March 27, 1908, by Dr. Fournier; 6 cases operated on in Italy (Ruggi, Canepile, Melzi, and Cagnola); 3 cases by Killian; 2 cases by Pieniazeck; 9 cases operated on in Belgium (Janquet, Delsaux and Sargnon, Beco and Sargnon, Goris, Broeckaert, Cheval), and 1 case operated on at Angers (Kaufmann, Montprofit and Sargnon).

In order to investigate the question of priority, let us examine the history.

As regards recurrent papillomata, the priority belongs incontestably to the Italian school; Professor Ruggi, no doubt, performed the first operation of this kind.

As regards the treatment of cicatricial stenosis of the larynx we know that it was Professor Killian who systematically made use of the method, and it was he who showed one of us, on a visit to

his clinic, the main lines of the operative procedure, which we have since utilised with complete success.

All these publications have drawn the attention of laryngologists to this operation. It is mentioned notably in the recent work of Escat, in that of Professor Moure, in *La Revue Médico-Chirurgicale de Thérapie*, 1907, by Courtade. M. Baratoux, in the *Bulletins et Mémoires de la Société du IX^e arrondissement de Paris*, November 14, 1907, has made it the subject of a general review; he follows the operation step by step, and the different post-operative phases that we have studied.

Professor Moure, in the *Journal de Médecine de Bordeaux*, No. 29, 1907, advises it for narrow tubular constrictions—cases until now considered as incurable. M. Bourgeois, in *Le Progrès Médical* of December 7, 1907, in discussing the treatment of stenosis of the larynx, gives a large place to laryngostomy.

Quite recently Professor Navratil (*Arch. de Chauveau*, January–February, 1908, p. 42) declares that good results may reasonably be expected from laryngostomy for cases of severe cicatricial stenosis.

Operative Technique.—This naturally varies according to the end in view: dilatation of a cicatricial stenosis, or the more or less prolonged observation of a diseased larynx (papillomata and recurrent benign tumours, malignant growths in the early stage, certain cases of tuberculosis). In these latter cases dilatation is quite secondary and gives place to observation, cauterisation, excision, or radio-therapy.

Until now, laryngostomy with dilatation by rubber tubes (Killian's method) has been chiefly made use of and studied. We must mention, however, laryngostomy performed for recurrent papillomata.

We shall lay particular stress upon laryngostomy with dilatation, giving numerous details resulting from our personal experience. This operation is being made use of more and more, and its future is certain. The main lines of this treatment are quite clear; the details, however, can be modified considerably.

Laryngostomy for serious stenosis of the larynx comprises four essential stages: (1) Laryngostomy; (2) the dilatation and the dressings; (3) the antoplasty; (4) the observation and maintenance of an aperture in the trachea for safety.

I.—LARYNGOSTOMY.

In such a case the operation is really a tracheo-laryngostomy,

although in certain cases wearing cannulae after a very low tracheotomy, simple laryngostomy can be done, leaving intact a tracheal bridge above the cannula. If a high tracheotomy or a laryngotomy has been done, either total or partial laryngostomy is necessary.

Precautions before the Operation.—Before the operation the patient must be quite cool and completely free from any febrile symptoms and from any pulmonary disturbance, excepting only the symptoms of tracheal irritation inevitably produced by wearing the cannula. This is a condition absolutely indispensable to success. Taught by one of our cases, we shall wait in future until tracheal suppuration has entirely disappeared, and until the temperature has fallen to the normal for some long time.

Aseptic precautions should be minute in order to avoid the risk of broncho-pneumonia. The latter will be prevented principally by making use of Rose's position, with the patient's head very low, and hanging beyond the end of the bed, supported and kept immobile by the same assistant during the whole period of the operation.

The operator stands at the head of the patient. One assistant takes charge of the swabs and controls the bleeding; a second assistant fulfils the important duties of administering the anæsthetic, and of replacing the cannula as often as is necessary during the operation. There should always be a sterilised cannula (Krishaber) within easy reach of his hand.

Instruments.—Besides the ordinary instruments, knife, forceps, scissors, etc., certain special instruments are necessary: A strong blunt-pointed knife is required for division of the cartilages. Moure's cutting forceps are very useful in the numerous cases of ossification of the cricoid and thyroid cartilages. A strong grooved director is also wanted for dividing, in case of need, any cicatricial bands; small retractors, something like retractors for the eyelids only smaller; a second Krishaber's cannula, in case the first gets soiled, entrusted to the second assistant (we have never found the need of a tampon cannula); some strong silk for suture of the cartilage to the skin; and lastly, a strong electric lamp, by preference either an electric reflector or Clar's lamp, in order to facilitate the manœuvres, sometimes very difficult, of exploring the larynx, and of the median division of cicatrices inside the larynx.

For cannulae we used in the first place an ordinary Krishaber's cannula; afterwards, so as to facilitate section immediately above

the cannula, a Krishaber's tube modified by having the shield cut away above, and the fixation screw below. The same modifications adapted to Lombard's cannula gave us every satisfaction. This is the model which we now always employ; it greatly facilitates division of the parts just above the tube, and allows the dressing to be adjusted with ease.

Anæsthetic.—We usually operate under general anæsthesia; ethyl chloride, by Billroth's method, is preferable to ether alone, because of difficulties with respiration.

In one case we used Schleich's infiltration method with the strong solution, with complete success, for an operation lasting an hour. Three injections of two syringefuls and a half, a quarter of an hour beforehand, gave a very long operative anæsthesia. This method was adopted as the little patient, who was wearing a tube, showed signs of apnoea each time that general anæsthesia was attempted. This is a formal indication for local anæsthesia in similar cases.

Operation.—Laryngostomy, properly so-called, comprises four stages: (a) The section of the soft parts and of the larynx; (b) the median division of the scar tissue; (c) the suture of the larynx to the skin; (d) the adjustment of the drain and the dressing.

The section of the soft parts includes the skin-incision, of variable length according to circumstances; also division of the cellular tissue, fascia, the interval between the muscles, and, if there is a low tracheotomy, of the remains of the thyroid isthmus. Of course all hæmorrhage must be carefully checked, so as to run no risk of broncho-pneumonia. This will take some time if the incision goes through the thyroid gland, as happened to us in one of our cases. If the tracheotomy has been a high one, there is hardly any hæmorrhage, so that the larynx could be divided at the same time as the soft parts, as in laryngotomy, but we do not recommend the plan.

The landmarks of the larynx and the trachea are often difficult to recognise because the scars of the old tracheotomy have altered the relations of the respiratory tube, which deviates from its median position. The incision must be made slowly, until the larynx and trachea are clearly in view, and until their anterior surface is laid completely bare. In this way, particularly if care has been taken to expose the front wall of the trachea in the part just above the cannula, the laryngo-tracheal canal can be opened without bleeding.

When all hæmorrhage has been stopped, the operator divides

the larynx or the trachea and larynx from below upwards after having taken out the cannula, if the incision starts from the tracheotomy wound. Where a bridge above the cannula is to be left, the tube need not be interfered with. Starting from the tracheal aperture, the blunt-ended bistoury is introduced upwards and behind, and the section is thus made strictly in the median line, through the trachea, the cricoid cartilage, and the thyroid cartilage. If, as in one of our cases, an intermediate bridge is to be left, which is a useful precaution if the tracheotomy is very low and the space above the tube is found on examination to be quite clear, a perforation is made with an ordinary scalpel, preferably just below the cricoid, or, in case of need, between the cricoid and the thyroid, and the division of the larynx is completed either with scissors or, better still, with a probe-pointed knife. As a rule, it is not necessary for the incision to extend beyond the upper border of the thyroid cartilage.

In practice, with serious cases of tube-wearers we always make the incision total, from the tracheal wound up to the superior edge of the thyroid cartilage. This is the best means for exposing freely all the lesions, and for dilating them methodically, and also for avoiding certain late complications, particularly at the time of the plastic operation.

In cicatricial stenosis only moderately contracted, all these manipulations are generally easy, although section of the altered cartilage may be rather hard. But when the larynx is closed up, as happened in several of our cases, the median incision becomes extremely difficult, and the scissors, probe, and director must be used in order to make a median artificial passage, without as yet hoping to divide the cicatricial tissue to the full extent of its depth. When this has been accomplished the larynx must be plugged with gauze lightly impregnated with a solution of cocaine 1 in 20 or 1 in 30, with some drops of adrenalin 1 in 1000, so as to check hæmorrhage, and, above all, to suppress the reflex movements, which are at times serious, starting from the interior of the larynx. If the hæmorrhage is severe it may be necessary to replace the cannula and push in above it a strip of gauze, so as to form an isolating plug. In this way the operator will have time to produce local anaesthesia and thorough hæmostasis.

(To be continued.)

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF
MEDICINE—LARYNGOLOGICAL SECTION.*Friday, June 12, 1908.**J. BARRY BALL, M.D., President, in the Chair.**Abstract of Proceedings by DR. DAN MCKENZIE.*

THE FIRST ANNUAL MEETING.

THIS was held at 4 o'clock, a very satisfactory Report from the Council being received and adopted.

The election of officers for the ensuing year then took place and resulted as follows :

President.—J. Dundas Grant, M.D.

Vice-Presidents.—H. Betham Robinson, M.S., Charters Symonds, M.S., P. Watson Williams, M.D., R. H. Woods, B.Ch.

Secretaries.—George C. Catheart, M.B., Atwood Thorne, M.B.

Members of Council.—J. Barry Ball, M.D., H. J. Davis, M.B., W. Jobson Horne, M.D., Arthur Hutchison, M.B., W. Stuart-Low, Chichele Nourse, Fitzgerald Powell, M.D., Sir Felix Semon, K.C.V.O., M.D.

Representative on the Library Committee.—StClair Thomson, M.D.

Representative on the Editorial Committee.—Atwood Thorne, M.B.

The following cases and specimens were exhibited :

CASE OF MALIGNANT GROWTH OF THE SEPTUM AND NASO-PHARYNX
REMOVED BY AN EXTERNAL OSTEO-PLASTIC OPERATION.

BY DR. WATSON WILLIAMS.

E. C—, a female, aged twenty-five, single. On December 9, 1907, she was admitted to the Bristol Royal Infirmary for nasal obstruction and severe and repeated epistaxis, after the attempted removal of a supposed nasal polypus. By anterior rhinoscopy a neoplasm, about the size of a forefinger tip, was seen to be growing from the septum, about one inch behind the vestibule, and blocking

the nasal passage completely. By palpation and by posterior rhinoscopic examination the growth was seen to extend backwards, growing from the posterior choana and roof of the naso-pharynx. A removed fragment was submitted to Professor Walker Hali, who pronounced it to be a round-celled sarcoma.

It was evident that nothing short of a complete extirpation of an extensive malignant growth could be successful, and, as the growth was exceedingly vascular, it seemed best to adopt a method by which the blood could be excluded from the pharynx.

December 12, 1907.—Operation was performed by the osteo-plastic flap, similar to that which I make for fronto-ethmoidal radical operation, though not reaching so high up. The first incision extended down to the bone, from the root of the nose just to the left of the middle line, as far as the free lower border of the nasal bone, the incision being continued into the nasal passage. A second incision curved down from a point internal to and above the inner canthus down to the middle of the lower orbital margin; the lachrymal duct was turned aside, and the groove opened into the nose. A transverse incision united the upper ends of the other incisions, and two nasal bones divided from the frontal bone by a chisel, and a fine narrow saw passed into the left nasal passage so as to emerge at the opening made in the lachrymal groove, divided the nasal process of the superior maxillary bone from within outwards without injuring the overlying soft tissues. The flap thus formed was turned down and held aside, the naso-pharynx being plugged by a naso-pharyngeal forceps sponge holder. The septum was rapidly removed from a little in front of the growths right back to the naso-pharynx, the whole septum being removed except the anterior margin of the cartilage. The left ethmoidal cells and middle turbinal were likewise cleared away, back to the sphenoid sinus, and the growth was also cleared away from the roof of the naso-pharynx. The osteo-plastic flap was finally pushed back into position and sutured.

Recovery was uninterrupted, without any facial defect or deformity whatever. The growth has not so far recurred.

Mr. DE SANTI congratulated Dr. Watson Williams on the excellent result he had obtained. He asked how the hæmorrhage had been controlled in the naso-pharynx.

Dr. PETER McBRIDE also congratulated the exhibitor. The method was not altogether novel, but seemed to be a modification of the method by which Moure, of Bordeaux, had obtained access to the ethmoidal cells.

Mr. STUART-LOW said the æsthetic result was not so good as in a similar case he had seen operated upon by Mr. Chichele Nourse where the incision made was that for removal of the upper jaw.

Mr. CHICHELE NOURSE recalled to the memory of the members the case Mr. Stuart-Low had alluded to. It was shown at a recent meeting of the Section. The incision made was that employed in the removal of the upper jaw. The cheek flap having been laid back in the usual manner, the outer and inner walls of the antrum were removed, and the ascending process of the superior maxilla and the nasal bone resected. The exposure was excellent, free access being provided, not only to the ethmoidal, but also, he had observed, to the naso-pharyngeal regions.

Mr. WAGGETT said that Rouge's operation was excellent for cases of this kind. There was no hæmorrhage by this method, no scar, a good view and scarcely a stitch required.

Dr. WATSON WILLIAMS, in reply to Mr. de Santi, said he had used the post-nasal sponge to keep the blood from the pharynx. The incision he had adopted gave a splendid access. He had chosen this plan in preference to Rouge's because of the high attachment of the growth, which did not permit of its being attacked from below.

CASE OF LARYNGEAL DISEASE FOR DIAGNOSIS.

BY DR. WATSON WILLIAMS.

(Shown at the Society's meeting on December 6, 1907, *Trans. Roy. Med. Soc.*, vol. i, No. 3, January, 1908, p. 23; *JOURN. OF LARYNGOL., RHINOL., AND OTOL.*, February, 1908, p. 84).

H—, a gardener, age twenty-four. Suffered from hoarseness for three and a half years. In December the left vocal cord was immovable and was covered almost entirely by a swollen ventricular band, along the free margin of which was a fairly circumscribed fringe with a shallow ulcer on the free edge. There was some fulness of the region outside the right ary-epiglottic fold, corresponding to the outer surface of the cricoid cartilage. The movements of the right cord were unimpaired.

Since December the laryngeal disease has steadily progressed, the right side being now nearly as much implicated as the left.

February 26, 1908.—Patient had been suffering from dyspnoea due to the increasing laryngeal obstruction for some days, and tracheotomy was performed under local anæsthesia. The right ventricular band and swelling over the cricoid cartilage had much increased, and the left ventricular band was also swollen along its inner border. The arytenoid regions were somewhat swollen and cedematous. Calmette reaction negative. Temperature normal or subnormal. Pulse varying between 80 and 90 a minute before operation.

May 11, 1908.—For some time the laryngeal obstruction has been complete. Both ventricular bands and arytenoid regions much swollen, concealing the vocal cords completely.

A piece about the size of a lemon-pip was removed from the left ventricular band near its margin, and submitted to Professor Walker Hall, who reported that "it showed no evidence of recent tuberculous and syphilitic disease. It is chiefly papillomatous in nature with some fibrosis of the subdermal tissue."

Meanwhile two large, hard, movable glands had appeared in the neck on the left side—one just outside the top of the great cornu of the hyoid bone, and another a little lower on the level of the thyroid ala. The lungs are clear except that there was some increased vocal resonance and bronchial breathing in the left supra-scapular region. He is steadily losing weight. The secretions from the larynx and expectoration never revealed the presence of tubercle bacilli, but numerous capsulated diplococci were found. Four times Calmette reactions have been negative. He was put on large doses of iodide of potassium before he was first shown, but with no benefit. The temperature now is usually normal, but sometimes reaches 100.2° F. at night.

Sir FELIX SEMON in so young a patient hesitated to speak of malignancy, but at the recent Congress in Vienna Chiari had shown a case of undoubted epithelioma of the larynx in a young girl, aged sixteen. The microscopic evidence in the case was indubitable. If the patient now before the Section were fifty years of age, everyone would at once say that the disease was malignant and that the cervical glands had enlarged in consequence. The only other likelihood was that the condition was due to perichondritis arising from some obscure cause. The microscopic specimen certainly had given a negative result, but after all microscopic specimens were not decisive. In his opinion the case was malignant.

In Dr. JOHNSON HORNE's opinion the microscopic specimen in this case was decisive of malignant disease.

Mr. DE SANTI said the suspicion of malignancy was so strong that an exploratory operation should be undertaken.

Dr. WATSON WILLIAMS said he had not yet made a diagnosis and was hesitating between tuberculosis and cancer. If it was malignant he would not undertake an exploratory operation unless he could obtain from the patient permission to turn an exploratory operation into a complete laryngectomy. Otherwise it would be better to leave alone a growth as extensive as this one.

SKIAGRAMS OF ACCESSORY SINUSES OF THE NOSE.

BY DR. WATSON WILLIAMS.

These included, among others, one showing a pus-containing frontal sinus, contrasting clearly with a normal one filled with air, also some showing cannulae in the frontal and sphenoidal sinuses.

SPECIMEN OF A LARGE POST-NASAL POLYPUS REMOVED FROM A BOY,
AGED FOURTEEN AND A HALF.

BY DR. HERBERT TILLEY.

A boy, aged fourteen and a half, had suffered for two years from nasal obstruction. In the summer of 1907 his general medical attendant snared away some polypi, but they quickly returned and were again removed and their bases freely cauterised. Recurrence again took place, and in addition a large post-nasal growth became visible. Patient was seen by exhibitor March 29, 1908. There was complete bilateral nasal obstruction with very "deadened" voice. A polypus occluded the entrance to the left nasal cavity, and the rounded end of a large swelling could be seen just below the free edge of the palate, the latter being bulged downward and forward. The growth was semi-transparent, firm to the touch, and was proved by digital examination to spring from a pedicle situated in the posterior ethmoidal region. Transillumination showed both antra to be clear, and no pus was present in either nasal cavity. Under chloroform narcosis the large polypus was removed *in toto* with forceps, and no severe bleeding resulted. The smaller intra-nasal polypi were removed with an ordinary snare, and the ethmoidal region was thoroughly curetted. The left maxillary antrum was not explored.

A *spectroscopic slide* showing well-marked development of the orbito-ethmoidal cells seen from within the nasal cavity. The slide also showed a well-developed moriform hypertrophy of the posterior end of the inferior turbinal.

Dr. JOHNSON HORNE remarked that the spectroscopic slide interested him as proving that the frontal sinus was merely a glorified ethmoidal cell.

Dr. WATSON WILLIAMS considered that the fact that the frontal cell opened into the infundibulum and the ethmoidal cells did not was sufficient evidence against this view.

Dr. PATERSON said the fact that these cells grew from the frontal sulcus in the frontal recess was a good reason for calling them "frontal cells."

Dr. HILL asked, regarding the polypus, whether this was a post-nasal or a nasal polypus?

The PRESIDENT said it was a nasal polyp which had grown back into the naso-pharynx.

Mr. CRESSWELL BABER remarked on the early age of the patient. He preferred snares to forceps.

The PRESIDENT thought that the forceps were very useful in removing polypi situated far back in the nose.

Dr. TILLEY, in reply, had used a general anæsthetic on account of

the youth and nervousness of the patient. The polypus could be seen from the anterior nares. It would have been impossible to snare the large polyp. He had, therefore, snared the small and removed the large growths with the forceps. The left maxillary antrum was not explored because his experience in these large post-nasal polypi had been that the antrum was always free of disease.

A CASE OF SUBGLOTTIC HYPERPLASIA WITH CONSIDERABLE NARROWING OF TRACHEAL AIR-WAY.

By DR. HERBERT TILLEY.

The patient, aged thirty-four, observed some difficulty in breathing three years ago, but only on exertion or fast walking. Shortly afterwards he suffered from several attacks of malaria in the north-west of Ceylon. He recovered from these, but the breathing difficulty increased, and he began to experience a "feeling of irritation in the wind-pipe," from which he coughed a considerable amount of mucus. For twelve or thirteen years had bled rather frequently from the nose, and had often had to remove blood-crusts therefrom. No history of syphilis obtainable, and iodide of potash in 10 gr. doses produced marked iodism. Patient was now taking hydriodic acid. Had had smallpox when five or six years old. Had been a heavy smoker for seven to eight years—until recently.

Examination of larynx.—The vocal cords had normal appearances and movements. Below the glottis the air-way was much narrowed by a concentric hyperplasia of rather bright red colour.

The right side of the nasal septum was superficially excoriated, and in this nostril there was a considerable accumulation of crusts formed of muco-pus and with an admixture of blood. The combined nasal and tracheal appearances suggested syphilis as the cause, but no history of this could be obtained. The question of tracheotomy had been raised, and the views of members with regard to this and the aetiology of the lesions were desired.

Dr. TILLEY said that since that report had been written the patient had died. He showed the larynx to the members. The patient had died in hospital from general septic intoxication associated with phlebitis of the left arm. Shortly before death dyspnoea was so bad that the patient asked him to put in a tube. This he had done, without, however, relieving him much. As to the nature of the laryngeal thickening he was ignorant. During life, in spite of the obvious stenosis, the only discomfort complained of was some dyspnoea on exertion. The laryngeal appearance was that of a subglottic web. There was no other sign of disease save in the septum nasi, where there was slight superficial ulceration, a feature which suggested to the speaker that the disease might

have been syphilitic. Potass. iodid. had disagreed with the patient, but all special treatment had to be abandoned when his fatal illness set in. He was of Cingalese origin.

Sir FELIX SEMON suggested that the specimen should be examined for scleroma, a disease which had been known to affect this nationality.

ABSCESS IN THE LEFT CEREBRAL FRONTAL LOBE, ORIGINATING FROM
NASAL SUPPURATION IN THE LEFT FRONTAL SINUS.

BY MR. L. V. CARGILL, MR. WILLIAM TURNER, AND DR. STCLAIRE
THOMSON.

George O——, aged thirty-one, was admitted to the Seamen's Hospital twenty-one days after influenza, with a temperature of 100° F. and left orbital cellulitis. This was incised, and pus was evacuated. Fourteen days later patient became depressed, then noisy and irritable. Optic neuritis was well marked. Mr. W. Turner opened the frontal sinns and found the posterior wall softened and easily broken down. This exposed the cerebral surface together with dirty grey-looking granulations. The brain itself was exposed by removal of this piece of bone, but no dura mater could be discovered. The brain pulsed and did not bulge. A needle was inserted directly backwards, and thick creamy pus was struck. Three to four ounces of pus poured out, yielding a pure culture of *Staphylococcus aureus*. The papillitis subsided. Some diplopia was left from paresis of the left superior rectus. The patient was now quite well. No pus could be discovered in the nose, and no history of nasal suppuration at any time could be obtained.

The case is evidently one of acnte, closed, suppurative frontal sinusitis with secondary abscess in the left frontal cerebral lobe.

Dr. SCANES SPICER observed that it was difficult to examine the posterior ethmoidal region because of the bend in the septum. There seemed to have been no very definite sign to lead to the brain being punctured, and yet that step had had a triumphant result. The interesting question was whether this was a blood infection or a local infection? Three or four years ago he had shown a case of frontal sinus abscess where the sinus was shut off from the nose and where, for that reason, no pus was to be found in the nose. It seemed to the speaker that the *Staphylococcus aureus* infection suggested an extension from mucous membrane rather than an infection from the blood.

Mr. STUART LOW offered his congratulations upon the successful result of the operation. He had always supposed that suppuration in the nasal labyrinth was more liable to give rise to meningitis than to cerebral abscess. He was of opinion that the extreme septal deviation by blocking the upper regions of the nose was probably responsible for the sinus suppuration in this case, and unless this was rectified a recurrence of the

suppuration might be expected. The obstruction on the left side of the nose could be clearly demonstrated by using the "spiograph."

Dr. STCLAIR THOMSON said that his teaching regarding brain lesions in nasal suppuration was that infection from the sphenoidal sinus caused cavernous sinus thrombosis, that from the ethmoidal cells caused meningitis, and that from the frontal sinus most frequently led to cerebral abscess. Had this patient been in the medical wards of a general hospital or in an ophthalmic hospital he must have died, and the case would have been diagnosed as one of "idiopathic cerebral abscess" or of "orbital cellulitis." He asked what symptoms had led the surgeon to open the brain. He remembered a case of frontal sinus suppuration in which an operation carried out on one side was followed by death, and at the *post-mortem* a frontal lobe abscess was found on the side of the brain opposite to the side operated on.

Dr. HERBERT TILLEY narrated a case which emphasised these points. It was that of a man with an abscess in the frontal region. This was opened by his doctor. The intra-nasal condition was doubtful. When seen by the speaker he was lying in an apathetic, stupid state from which, however, he could be roused. There was no frontal pain and no optic neuritis. Three days later he died. The frontal sinus was opened *post mortem* and was found to contain a small quantity of pus. The posterior sinusal wall was deficient, and there was a large frontal abscess. The possibility of such an abscess should always be borne in mind in cases such as these.

Mr. W. TURNER, in reply to the question why he went for abscess in the brain, said that the patient was depressed and dull; the temperature was subnormal, the pulse was subnormal, and there was double optic neuritis. Two other symptoms were present, namely, proptosis of both eyes, especially of the left, together with swelling of the subcutaneous frontal veins. These two symptoms suggested cavernous sinus thrombosis. There was no vomiting or headache, and no time for a blood-count. A definite surgical local condition led him to the abscess, for there was a sinus over the eye discharging pus, at the bottom of which carious bone could be felt on probing. He had operated knowing that if the lesion present were cavernous thrombosis his operation would do no harm, while if it were abscess the operation would give the patient a chance for his life.

CASES ILLUSTRATING THE SURGERY OF THE SPHENOIDAL SINUS.

By Dr. STCLAIR THOMSON.

CASE 1. *Sphenoidal Sinus Operation on Both Sides.*—John U. Y—, aged thirty-two. The anterior wall of the right sphenoidal sinus had been entirely removed, leaving an opening large enough to admit the tip of the forefinger. The cavity was quite clear, and free from any traces of suppuration, and lined with a pink mucosa. The orifice of the left sphenoidal sinus had been entered, and although not so open as it was at first was still quite patent. The cavity was very large, and was quite free from suppuration. This patient had a pan-sinusitis. In order to obtain access to, and drainage of, the fronto-ethmoidal regions a submucons resection

was performed on the septum. Every sinus has been operated on except the right maxillary. This latter was found to contain pus on several occasions, but it had ceased to suppurate since the frontal, ethmoidal, and sphenoidal had been cured. Pus persisted in the left maxillary sinus, and this had recently had a Caldwell-Luc operation performed on it.

CASE 2. *Sphenoidal Sinus Operation on the Left Side.*—Mrs. B——, aged twenty-one. A large opening had been made into the left sphenoidal sinus, which was now perfectly healthy and free from suppuration. The ethmoid had been well cleared away and a Caldwell-Luc operation had been performed on the left maxillary sinus. Although the antro-nasal opening was very large the cavity still secreted.

CASE 3. *Sphenoidal Sinus Operation on the Right Side.*—Mrs. W——, aged forty-six. Pan-sinusitis of the right side. This patient suffered so intensely from headache that she was first admitted to the Queen Square Hospital for suspected cerebral tumour. The right frontal sinus was repeatedly washed out; her headaches were relieved, but at times recurred with intensity. These recurrences were found to be associated with exacerbation in the frontal and sphenoidal sinuses. The Killian operation on the right frontal sinus was not as æsthetic in result as usual, as part of the bridge necrosed. However, the cure of the frontal ethmoidal suppuration was complete. The anterior wall of the sphenoidal sinus had been removed, and the cavity was quite free from suppuration even during bad "colds." (Some remains of ethmoid had lately been curetted, and this had given rise to a small adhesion which now obscured a complete view of the sphenoidal opening).

CASE 4. Sidney E——, aged twenty-five. The right sphenoidal sinus had been freely opened, showing a pale pink and quite healthy mucosa. It had been free from suppuration for many months. The left sphenoidal sinus had been enlarged, was quite patent, and all suppuration had ceased. This patient had a pan-sinusitis. All the cavities, except the right maxillary sinus, had been opened. On the left side the operations on the antrum, ethmoidal, and sphenoidal sinus had been completely successful. It would be seen that the Killian operation had also succeeded in obliterating the frontal cavity—yet the patient was not free from suppuration. This appeared to come from the "dead space" lying between the bridge and the posterior frontal wall. This case illustrated the weak point of the Killian operation, and there did not appear to be any means of correcting it.

The PRESIDENT said Dr. StClair Thomson's cases were illustrative of all the sinuses. The series showed that instead of being the least, the sphenoidal sinus was actually the most accessible of all the sinuses.

Dr. PATERSON, referring to the suppuration in "Case 4" from the so-called "dead space," said he had often examined this space after the Killian operation, and had found it well lined with epithelium. He thought that the pus in this case must have some other origin. In addition he reminded the Section that in cases with a large opening and no infundibulum at all there was necessarily a huge dead space, but no suppuration occurred unless there was infection and disease.

Dr. WATSON WILLIAMS congratulated Dr. StClair Thomson upon a magnificent series of cases. He agreed with him regarding the "dead space." He himself was using an osteoplastic flap method. By so doing he got full access to the regions behind.

Dr. STCLAIR THOMSON said that there must be a space between the back of the bridge and the posterior wall which did not become filled with scar-tissue as we desired it to be.

MARKED DEVIATION OF THE SEPTUM IN A MAN.

BY DR. STCLAIR THOMSON.

This showed a form of deviation for which no relief could be obtained except by the submucous resection. Adhesions showed previous ineffectual efforts to free the left nostril.

SPECIMENS OF DEEP-LYING BONY SPURS REMOVED BY SUBMUCOUS RESECTION.

SPECIMEN OF THE SEPTAL CARTILAGE removed by sub-mucous resection, and showing the adherent perichondrium left behind.

This specimen shows how *not* to do it.

SKIAGRAPHS OF THE SPHENOIDAL SINUS.

BY DR. STCLAIR THOMSON.

A CASE OF OPERATION FOR ANGINA LUDOVICI IN A MIDDLE-AGED FEMALE.

BY MR. STUART LOW.

The abscess had been accumulating for a week, and was very deeply situated. It was opened under an anæsthetic through a deep incision in the middle line of the neck, and on the second day a salivary calculus was found in the wound. Calculus shown.

Dr. PETER MCBRIDE asked, if this was a case of cervical cellulitis caused by a salivary calculus, why it was called *angina Ludovici*. This name, he had always understood, was only applied to a special form of inflammation.

MR. CLAYTON FOX asked if Mr. Stuart-Low could feel the calculus through the mouth before the abscess formed.

MR. STUART-LOW replied that the term "angina Ludovici" expressed the location of the inflammation in the cellular tissue of the neck, floor of the neck, tongue and pharynx. In this case the tongue so filled the half-closed mouth that it was impossible to pass the finger in. As it turned out the cellulitis was probably due to the calculus. Before the abscess formed the patient had noticed a swelling under the jaw which came and went.

CASE OF MALIGNANT DISEASE OF LARYNX.

BY DR. DAN MCKENZIE.

The patient, a male, aged fifty-one, has been suffering from hoarseness for four months. There was pain referred to the left side of the thyroid cartilage. There was dysphagia on swallowing saliva, but food passes without discomfort. The patient had not perceived any loss of flesh. The interior of the larynx was almost quite concealed by a pendent epiglottis, but the difficulty could be overcome by using an Escaut retractor. The left side of the larynx, including the cord and supra-glottic structures, was red, swollen, and did not move during phonation. Under favourable conditions some ulceration could be seen on the left ventricular band. There was an enlarged gland of the left deep cervical group on a level with the upper border of the thyroid cartilage. Iodide of potassium had proved useless. The case was shown with the view of eliciting opinions as to the advisability of operation.

SIR FELIX SEMON said he was not at all sure that this was a case of malignant disease. The left half of the larynx was fixed, no doubt, but the right cord did not come well up to the middle line. The swelling was much less than we should expect in malignant disease. There had been no difficulty in seeing the interior of the larynx as the epiglottis was not pendent.

DR. DAN MCKENZIE, although deferring to the authority of the previous speaker, was still distinctly of opinion that the case was malignant. Since he had written the notes on the case the local appearances had undergone considerable change; there was much less swelling, and the epiglottis was no longer pendent. This he attributed to the action of the iodide. The absolute fixation of the left cord in the position of wide abduction, the well-defined ulceration and infiltration of the left ventricular band and base of the epiglottis, together with the presence of an enlarged gland in the neck, could only, in his opinion, be interpreted in one way.

THE PATHOGENESIS OF PACHYDERMIA LARYNGIS VERRUCOSA ET DIFFUSA.

BY DR. JOHNSON HORNE.

The following specimens were shown in illustration of an

opinion previously expressed by the exhibitor (*The Lancet*, 1899, vol. ii, p. 607; *JOURN. OF LARYNGOL., RHINOL., AND OTOL.*, 1904, p. 464) that although the hyperplasia might be the result of a persistent laryngitis, pachydermia laryngis could not always be regarded as having a separate entity. It might be only a local manifestation of a general fibrosis (Specimen 1), or of a general infection, *e. g.* syphilis (Specimen 2), or of a localised disease, *e. g.* epithelioma (Specimen 3), or it might be a conservative process to protect the organ, and to arrest the underlying disease, *e. g.* tuberculosis (Specimen 4). (The sections were cut vertically and at right angles to the vocal cord.)

(1) A section through the ventricular band and vocal cord of the larynx of a man, aged thirty-seven. The epithelium and subjacent tissue of the vocal cord showed a hyperplasia which had resulted in the development of an excrescence with a sulcus above and below. At the autopsy there was found chronic interstitial nephritis with evidence of fibrotic degeneration in other organs. (A micro-photograph was exhibited.)

(2) A section from the larynx of a woman the subject of tertiary syphilis. There was marked hyperplasia of the squamous epithelium. (A micro-photograph was exhibited.)

(3) A section from a case of epithelioma of the larynx. It presented hyperplasia of the squamous epithelium; this had been broken in places in the preparation of the section.

(4) A section through the ventricular band and vocal cord of a larynx the subject of tuberculosis. In the submucosa might be seen numerous giant cells and tubercle bacilli. The superjacent epithelium had undergone a hyperplasia. The section demonstrated the process of natural arrest of laryngeal tuberculosis, and the conservation of the larynx as arrived at by vocal rest.

(5) A similar section stained to show tubercle bacilli, and placed under an oil-immersion lens. (A micro-photograph was exhibited.)

The specimens indicated some lines of treatment in pachydermia laryngis.

A CASE OF HYSTERIA WITH VERY UNUSUAL LARYNGEAL MANIFESTATIONS.

BY SIR FELIX SEMON.

The patient was a schoolmistress, unmarried, aged twenty-eight, who, in March, 1907, began to suffer from overstrain. She had what she called "shivering fits" in her head, shoulders, and arms,

which gradually became more and more frequent. Next, tremor in her arms supervened, and while she was getting better from these manifestations she experienced in August heaviness in both feet. In September, whilst the weakness in the left leg improved, that in the right became more aggravated, and the tremor and shivering fits recurred. She was admitted into the National Hospital for Epilepsy and Paralysis in October, under Dr. Ormerod's care, to whom he was indebted for permission to show the case. At that time none of the usual hysterical stigmata were present. There was no anaesthesia, and the field of vision was not contracted. Whilst in the hospital she gradually improved, and in November was much better, so far as the weakness of the leg was concerned. But she suddenly began to stammer. The form of stammering was quite the ordinary one. In January, with a view of creating a mental impression, a Faradic brush was applied to her neck, when all of a sudden she became completely mute. She herself tried hard to overcome this defect by over-action of the muscles engaged in articulation, but this was of no avail. She had to communicate with the outside world in writing. This continued until March. In that month the ward-sister manipulated her tongue with a view of creating a mental diversion, when the patient suddenly broke into speech, such as she now possesses, and which is the reason of her being demonstrated. It will be seen that with tremendous effort, and with violent and visible action of the muscles of the face, neck, and particularly those of the mouth, she produces a terrific amount of voice. She is unable to speak otherwise than in this shouting manner, or even to merely produce a sound. At the same time her voice is absolutely monotonous, and every syllable is separated by a distinct interval from the preceding one, reminding one of the scanning speech of disseminated sclerosis, of which, significantly enough, an instance was being treated in her ward when she suddenly began to speak as she does now, but not quite like it. The difficulty was greatest at the beginning of her speaking, but remained considerable throughout. On laryngoscopic examination nothing abnormal was seen during respiration, but on being told to phonate, a violent contraction of the larynx, simultaneously with that observed in the muscles of the face, ensued, the epiglottis became quite curled and covered the interior of the larynx, the arytenoid cartilages became firmly pressed against one another, the interior of the larynx became invisible, and no sound was produced for a long time. The present condition once more for a short time gave way to mutism, but

returned as it was now without any case known. Her gait was rather better; the tremor of the arms was slight. She was being treated now with respiratory exercises and sedatives, but no improvement had as yet been obtained.

The case reminded him in some respects of two other ones he had previously described—one (German edition of "Mackenzie's Diseases of the Throat and Nose," vol. i, 1880; footnotes pp. 614 and 659) in which chronic perverse action of the vocal cords suddenly gave way to ordinary functional aphonia when a cold water douche was applied; and another "Heymann's Handbuch der Laryngologie," vol. i, pp. URP) in which trismus of the muscles, not only of the larynx, but also of the face and neck was so great that the patient, a once famous American pulpit orator, was absolutely unable to produce a sound. What the exact mechanism is by which such "crosses between paralysis and spasm," as I called them in the German edition of Mackenzie's text-book, are produced it is impossible to say, and I would also refrain from discussing whether the extraordinary manner of speech now present in this patient is an unconscious imitation of the speech of disseminated sclerosis as witnessed by her.

The PRESIDENT said hysterical mutism was rare. He had had a case which got well by speaking and practising the utterance of simple words such as "yes" and "no." In a second case, that of a man, the Faradic current brought back his speech so far that he was able to whisper or utter words in a low voice. But he relapsed and did not speak for four or five years. Ultimately his speech was restored by the bursting of a soda-water bottle.

A CASE OF (?) COMBINATION OF TUBERCULOSIS AND SYPHILIS IN THE LARYNX.

By SIR FELIX SEMON.

Male, aged forty-four. In August, 1902, considerable swelling of right arytenoid region and infiltration of right vocal cord. No chest signs and no tubercle bacilli, but laryngeal appearances so suspicious of tuberculosis that patient was sent to a sanatorium. A large sharply-cut oblong ulcer developed in the posterior part of the right vocal cord, which remained much swollen and congested, the movements of the right half of the larynx also becoming deficient. In spite of the absence of a syphilitic history, syphilis was suspected, and anti-syphilitic treatment instituted. The laryngeal condition did not improve at first, but the iodide produced a slight amount of secretion, and in this a very small number of

tubercle bacilli were detected. Gradually the larynx got better, the swelling and ulceration of the right vocal cord diminished, its mobility improved, and the tumefaction of the right arytenoid cartilage distinctly decreased. A course of mercurial inunctions was instituted and the patient got practically well, and remained so for about five years, but in April of this year, first on the right and a few days afterwards on the left ary-epiglottic fold, suspicious-looking white patches developed, much resembling ordinary condylomata lata as seen in the pharynx. The patient stated that early this year a rash had appeared on his skin, which was supposed to be syphilitic. Under anti-syphilitic treatment within a few days the white patch disappeared on the left side, and that on the right became much smaller. Six weeks later the condition had again materially deteriorated. When seen on June 1 his voice was very hoarse, and it was seen that instead of the white spot previously seen on the posterior aspect of the right arytenoid cartilage there was now extensive ulceration extending to the posterior part of the right ventricular band and ary-epiglottic fold, whilst the right cord throughout its length was very œdematous. Its movements are not hampered. Energetic anti-syphilitic treatment had been instituted. There had been no recent symptoms pointing to recrudescence of tuberculosis, either in the chest or generally.

Dr. WATSON WILLIAMS said that cases of mixed infection were of great interest. He would be chary of diagnosis without watching the case.

Dr. ST. CLAIR THOMSON thought the disease was tubercular rather than syphilitic, the ulceration being of the typical grey character.

Dr. DE HAVILLAND HALL remarked that these cases were always difficult of diagnosis. He had had a case of a lady under his care with what seemed to be typical ulceration of the larynx, in whom there were signs of pulmonary disease in one apex, and whose expectoration contained tubercle bacilli. Lactic acid was rigorously applied and some amelioration in the local condition followed. There was no suggestion of syphilis in the history, and yet, when iodide was given, rapid and complete improvement, both in the lungs and in the larynx, followed. It should be remembered that if the case was purely tubercular iodide of potassium would aggravate the changes in the lungs. Another case he recalled to memory was that of a youth with what seemed like syphilitic ulceration in the pharynx and larynx, but with a family history of tubercle. There was no story of infection by syphilis, but iodide had induced great improvement in the disease, from which he supposed that, although the eyes and teeth were normal, the cause was hereditary syphilis.

Mr. DE SANTI had had a similar experience. The case was one of a woman with pulmonary and laryngeal tuberculosis. Tubercle bacilli were found in the sputum. Under treatment she went steadily downhill, it was then observed that she had syphilitic ulceration of the nasal

septum with sinking of the bridge of the nose. Iodide was then given and the trouble began to clear up both in the lungs and in the larynx. In the case before them the lesion seemed to be tubercular rather than syphilitic, but he thought that iodide might be tried.

Sir FELIX SEMON agreed that if he had only seen the case as it was at present he would be in doubt as to the nature of the disease. The feature of the case was its varying character. At first what looked like a condyloma appeared on one, and then on the other side. Next, deep ulceration on the right side from the arytaenoid to the ventricular band was found. This kind of ulcer was unusual in tuberculosis. The anti-syphilitic treatment had resulted in improvement. The features of the one disease were modified when mingled with those of the other. He agreed as to the case to be exercised in giving iodides in phthisis. In this case there was œdema of the right cord, but no aggravation of the œdema followed the administration of the salt.

AN X-RAY PHOTOGRAPH, SHOWING A HAJEK'S HOOK IN THE RIGHT SPHENOIDAL SINUS OF A GIRL, AGED EIGHTEEN.

BY DR. H. J. DAVIS.

The photograph was taken by Dr. Melville at the West London Hospital. The patient was lying down and on her side. The outlines of the sinus and surrounding structures are remarkably well defined. The bend of the hook is in the centre of the sinus and the shank was seen entering the cavity through the ostium.

SPECIMENS SHOWING A NORMAL AND A HYPERTROPHIED PHARYNGEAL TONSIL IN SHEEP (SOUTHDOWNS).

BY DR. H. J. DAVIS.

The animal with the hypertrophied pharyngeal tonsil ("adenoids") had enlarged faucial tonsils as well. These were also exhibited.

The shape of the vegetations appear similar to that found in human beings. The sulci are well marked, but the growth is paler and softer. The specimens were removed by the exhibitor after death. The animals were two years of age.

SPECIMEN OF A LARGE PEDUNCULATED FIBROMA (? FIBRO-MYXOMA) REMOVED FROM THE VAULT OF THE NASO-PHARYNX OF A BOY, AGED NINE.

BY DR. H. J. DAVIS.

The growth was removed with a ring knife, as it was found impossible to encircle it with a snare.

SPECIMEN FROM THE CASE OF A WOMAN, AGED FIFTY-TWO, EXHIBITED
AT THE APRIL MEETING, WITH A SUPPOSED "CYST" ON THE
FLOOR OF THE RIGHT NOSE.

BY DR. H. J. DAVIS.

On the suggestion that the "cyst" was of dental origin the right canine was extracted.

Ten days ago the growth was removed under chloroform. It was firmly adherent to the surrounding parts. The bone was expanded in all directions. (This expansion probably accounted for the pain experienced by the patient.)

The growth, as can be seen, is quite solid, and has not the least appearance of a cyst.

The microscopic specimen was also shown.

FURTHER NOTES ON THE CASE OF A WOMAN, AGED TWENTY-SEVEN,
EXHIBITED AT THE MARCH MEETING, WITH ALMOST COMPLETE
NASAL OBSTRUCTION ON THE LEFT SIDE, WITH INABILITY TO
CLEAR THE NOSE.

BY DR. H. J. DAVIS.

The patient was given chloroform. The obstruction was due to the presence of a thick yielding membrane stretching from the septum to the outer nasal wall. There was a fine perforation in the upper part, through which the small celluloid bougie referred to at the March meeting could occasionally be passed. With one finger in the left choana (which was narrower than the right) and an instrument pressed firmly backwards through the nostril, the membrane could just be felt with the finger; a curved bistoury was passed into the nose and the oval flap removed with some difficulty. It consisted of thickened mucous membrane, was not cicatricial tissue, and was evidently of congenital origin. There was no deviation of the bony septum as the exhibitor and others had supposed, nor any bulging of the inner antral wall. The nose was packed for twelve hours only, and the patency of the channel maintained by daily forcible syringing (aural syringe) through the opposite nostril. This method prevented the edges of the wound from becoming adherent, as probably would have occurred if other methods had been employed. The nasal passage was now patent.

Dr. PATERSON suggested that the membrane was the remains of the bucco-nasal membrane.

A CASE OF ETHMOIDAL AND (?) SPHENOIDAL SUPPURATION IN A
MIDDLE-AGED WOMAN.

BY DR. JAMES DONELAN.

Patient's cleft palate afforded good post-nasal view.

UNUSUALLY LARGE (LEFT) SPHENOIDAL SINUS WITH INTACT INTER-
SINUSAL SEPTUM.

BY DR. JAMES DONELAN.

CASE OF NEW GROWTH OF THE RIGHT TONSIL, WITH MICROSCOPIC
SECTION.

BY MR. CHARLES A. PARKER.

L. H.—, female, aged twenty-three. The patient first noticed a sensation of a lump in the throat in August, 1907. She came to hospital on August 6, when ordinary chronic enlargement of the right tonsil was diagnosed, and the tonsil was removed with a tonsillotome. The diagnosis was confirmed by microscopic examination. A rapid recurrence occurred, and three weeks later the tonsil had grown to the size it was before removal. It looked firm and felt hard. On October 29 a snare was passed round its attachment to the wall of the pharynx and the tonsil was again removed, and again it was found to be microscopically normal tonsillar tissue with increased fibrous tissue. The wound did not heal satisfactorily, and its edges rapidly increased in size, causing an appearance of a deep punched-out ulceration. This remained stationary for a time, and then the patient was lost sight of for four months.

She returned on May 7, 1908, with an extensive growth involving the tonsillar region, the soft palate of the anterior faucial pillar, base of the tongue, and lateral wall of the pharynx. In one portion there was deep ulceration, with hard everted edges. A piece of the thickened edge was punched out, but only showed normal hypertrophied epithelium. There was some enlargement of the cervical glands, but no enlargement of the spleen or of glands elsewhere in the body. Under iodide of potassium the patient seemed to get rapidly worse, whilst under arsenic the pharynx had become cleaner and healthier in appearance, though the growth had not diminished in size. Clinically the growth was

unquestionably malignant, extending rapidly, and infiltrating surrounding structures, but microscopically there was nothing to suggest this. The section shown was from the growth removed on the second occasion. The patient and section were now brought forward because of their interest, and to invite opinions as to the exact diagnosis. It was suggested that the extent of the growth rendered operative treatment impossible.

MR. CRESSWELL BABER thought the tumour was a lymphoma of the tonsil. He had seen a similar case in a young girl, aged fourteen, in whom the growth in the tonsil was removed under the impression that it was a simple enlargement. It kept on growing, however, and the patient finally died of pneumonia, with enlarged glands all over the body. He alluded to the curious circumstance that in this disease the enlargement of the glands seemed to disappear about twenty-four hours before death.

MR. LAMBERT LACK agreed that the case was one of lympho-sarcoma or lymphoma. The section bore out this diagnosis, for the structure was not that of normal tonsillar tissue.

DR. HERBERT TILLEY remarked upon the improvement manifested for a time by these cases when under treatment by arsenic. Ultimately this improvement ceased, and the patient came to be intolerant of the drug.

DR. DE HAVILLAND HALL had had a case in a woman in whom this temporary amelioration under arsenic had been observed.

DR. DONELAN suggested that the improvement under arsenic was really only apparent, and due to the absorption of the infiltration in the tissues around the growth.

DR. DAN MCKENZIE was sure that the reduction in the size of the glandular swellings caused by arsenic was due to a reduction in the glands themselves. It must be remembered that in this condition there was no circumglandular infiltration, the gland-tumours being discrete and movable one upon the other throughout the whole course of the disease. His experience of arsenic had been the same as that of the other speakers. He wished to draw attention to the frequency with which lymphadenoma began in the cervical glands. He related a case of a woman in whom the disease began in an axillary gland corresponding to an ulcerated mammary nipple. This experience, coupled with the knowledge of the frequency with which the disease began in the neck glands, brought a strong suspicion into the mind that the absorption of some infective material was the cause of the disease.

MR. PARKER said that arsenic had been tried in this case, but the disease had advanced in spite of it.

A CASE OF PULSATING ANGEIOMA OF THE NOSE.

By MR. W. D. HARMER.

A girl, aged ten. History indefinite (at least six years); condition not noticed at birth. First attended the hospital in March, 1905, with typical subcutaneous naevus; treated by canterly puncture. This was repeated in March, May and September,

1907; growth apparently arrested. Pulsation first noticed in the early part of this year, now seen on right side and tip of nose, in right infra-orbital region, also above inner canthus of right eye, in right upper lip, and right carotid region. No pulsation visible within nose. It did not disappear with compression of facial arteries alone, but ceased with pressure upon infra-orbital vessels and right facial artery, also with pressure of right carotid. A loud murmur was heard over tumour. The condition was progressing. The case was shown with a view to discussion as to treatment.

Mr. DE SANTI said that the only treatment worth trying was ligation of one of the deep arteries.

Dr. DAN McKENZIE had recently heard of a method of treating these tumours, which had been introduced by Dr. Payr, of Graz. This consisted in the introduction into the tumour through a special cannula of small "arrows" of magnesium metal.¹ This substance underwent a slow oxidation in the tissues, giving off hydrogen, and coagulating the blood in its neighbourhood. The process of oxidation occupied some weeks, and the introduction of the metal was repeated at intervals. He had heard the treatment highly praised by Dr. Macallum, of Melbourne, who had found it successful.

Mr. HARMER said he had not heard of Payr's treatment. He supposed that the only other method of treatment was the ligation of both facials, or the exercise of pressure upon the vessels feeding the tumour by means of an instrument specially constructed for the purpose.

A CASE FOR DIAGNOSIS.

By Dr. BUCKLAND JONES.

The illness began with discharge from the ear and bleeding from the throat. There was swelling of the right tonsil and velum palati. The swelling was firm, brawny, and slightly tender. A small enlarged gland could be felt at the angle of the jaw on the right side.

A CASE OF ADHESION OF THE SOFT PALATE TO THE PHARYNX FOLLOWING MEASLES IN A BOY.

By Dr. HILL.

Boy, aged five, with a scarred condition of the soft palate and slight loss of substance from ulceration due to scarlet fever one year ago; there is also adhesion of the left half of the soft palate

¹ The "arrows" of magnesium used by Dr. Payr can be obtained from Messrs. Rohrbach, 1, Kärntnerstrasse 59, Vienna. A paper descriptive of the treatment appeared in the *Centralblatt für Chirurgie*.

to the posterior wall of the pharynx. The case was shown on account of the rarity of the condition as a sequela of scarlet fever. No operative interference appeared to be called for as the scars and adhesions were fairly soft and there had been no contraction during the four months the case had been under observation.

THE meeting of the British Medical Association will take place this year at Sheffield on July 28, 29, 30, and 31. The Section of Laryngology, Otology, and Rhinology will be held under the Presidency of Mr. George Wilkinson, of Sheffield, the Vice-Presidents being Dr. Walter Jobson Horne, M.D., London, Mr. Harry Lockwood, M.R.C.S., Sheffield, and Dr. Duncan Gray Newton, M.B., Sheffield.

Foreign and Colonial visitors will be cordially welcomed in the Section, and those who may desire to attend are requested to send in their names as soon as possible to the Honorary Secretaries, together with the titles of any papers they may wish to read.

The Section will meet on Wednesday, Thursday, and Friday, July 29, 30, and 31, at 10 a.m., adjourning at 1 p.m. each day.

The following subjects have been selected for special discussion:

(1) Wednesday, July 29.—“Chronic Inflammation of the Pharynx.” To be opened by Dr. James Barry Ball and Dr. Peter McBride.

(2) Thursday, July 30.—“The Diagnosis of the Intra-cranial Complications of Middle-Ear Suppuration.” To be opened by Mr. Charles A. Ballance, M.V.O., and Mr. Arthur L. Whitehead.

(3) Friday, July 31.—“The Methods of Dealing with Suppuration in the Maxillary Antrum.” To be opened by Dr. StClair Thomson and Dr. Arthur Logan Turner.

In order to save time and correspondence all communications relating to the exhibition of preparations, instruments, etc., may be addressed to Dr. W. S. Kerr, 281, Glossop Road, Sheffield; and all others relating to papers and discussions to Mr. Hunter F. Tod, 111, Harley Street, London, and marked “Section of Laryngology, Otology, and Rhinology.” The two gentlemen have been appointed Secretaries to the Section.

Abstracts.

MOUTH AND PHARYNX.

Von Eberts, E. M.—*Tuberculosis of the Tongue*. “Montreal Medical Journal,” March, 1908.

The patient was first seen in October, 1907, complaining of sore tongue and swelling of the glands of the neck. Examination revealed a small

indurated mass immediately to the right of the median line of the tongue, one inch from the tip. The epithelium was not involved. There were numerous enlarged nodules in both submaxillary spaces, those on the right being tender. The left lung was involved, and the sputum contained tubercle bacilli. Early in November the nodule was excised by longitudinal incision. Three days later the stitches were removed, the surface being healed. The deep induration, however, still remained, and was quickly followed by crater-like ulceration, accompanied by pain. Toward the end of November a more extensive operation was decided upon, and the whole of the anterior third of the right half of the tongue was removed. Healing was complete, and up to the present, after an interval of several months, there has been no return. *Price-Brown.*

D. A. Heffernan.—*Removal of the Tonsil in Capsule.* "Boston Med. and Surg. Journ.," April 16, 1908.

The author asks why, if it is the general rule in surgery to remove as much diseased tissue as possible, there should be any hesitation in the case of the tonsil. Complete removal of the tonsil is the only way by which immunity from infection through the sinus tonsillaritis can be obtained. The author's method of removal is described.

Macleod Yearsley.

Sicre, A., and Vaquier, L. (Tunis).—*Naso-pharyngo-laryngeal Syndrome, with Paralysis of the Soft Palate and Vocal Cords, Typhoid in origin.* "Annales des Maladies, de l'Oreille, du Larynx, du Nez, et du Pharynx," March, 1908.

A child, aged four, was seized with what appeared to be follicular tonsillitis. The mucosa of the oro-pharynx was reddened, and the posterior wall and tonsils were studded with patches of exudate. Temperature 39.5 C., pulse 120. By the fifth day the exudate had increased. Antiseptic treatment did not improve the condition, and five days later the inflammatory process had invaded the nasal fossæ. On the twelfth day the case had all the aspect of a naso-pharyngeal diphtheria; the false membranes when detached left bleeding ulcerated surfaces. The velum was immobile, lax and anæsthetic. The pharyngeal reflex was diminished. Deglutition was accompanied by regurgitation through the nose. The sub-mandibular glands were swollen and tender. Rhinoscopy showed the mucosa to be reddened and covered with muco-purulent material, but there were no false membranes. Laryngoscopy revealed diffuse redness of the vestibule with muco-purulent discharge covering the epiglottic region. The cords were stationary in the cadaveric position. There were some râles about the pulmonary bases but breathing was easy. The abdomen was somewhat distended, and there were tenderness over the right iliac fossa and diarrhoea. Stools resembled in colour yellow ochre. Liver and spleen normal. Fever continued with slight matutinal remissions. Pulse 140, heart sounds regular, but muffled. Thirty c.c. of anti-diphtheritic serum were injected and tepid bathing was ordered. The child's condition rapidly grew worse and death occurred on the seventeenth day of the disease. No autopsy was made. Bacteriological examination conducted during life yielded the following results: "Pharyngeal exudate": Film revealed saprophytes, staphylococci, spirilla and leptothrix, also a bacillus 2 to 3 μ in length, which decolorised by Gram's method. On agar cultures of Eberth's bacillus were obtained. "Nasal exudate": Cultures gave *Staphylococcus albus*. "False membranes": Examination

by Deguy's method gave Loeffler's bacillus absent; cultures yielded staphylococci. "Patient's serum" possessed no agglutinating property, either on Eberth's or the para-typhoid bacilli. "Blood": Broth inseminated with blood from bend of elbow and incubated twenty-four hours gave a cocco-bacillus which complied with the tests for Eberth's bacillus.

The author remarks that the isolation of Eberth's bacillus from the pharynx in angina associated with typhoid fever, as in this case, is interesting. Most workers have failed in this direction, and attribute such throat manifestations to some secondary infection. Mention is made of the protean character of enteric fever in children. There were several unusual features met with here: (1) Onset resembling follicular tonsillitis; (2) absence of "rose spot" eruption; (3) absence of the serum reaction during greater part of the illness.

Typhoid fever setting in with a pharyngo-naso-laryngeal syndrome, as in the present case, is rare. The affection, which at first had simulated a grave attack of diphtheria, was really due to a virulent primary infection of the throat by a large dose of the *Bacillus typhosus*.

H. Clayton Fox.

Hellat, P. (St. Petersburg).—*Loss of the Oxydase of the Saliva as a Cause of Disease.* "Arch. für Laryngol.," vol. xx, Part II.

The author has met with a considerable number of cases in which the habit of frequent spitting has been associated with, and apparently the cause of, a variety of troubles. Of these the following are the most frequent: Disagreeable or painful sensations in the throat, feeling of dryness, cough, sensation of weight on the chest, dyspepsia and headaches. Many patients complain that there is something lodged in the pharynx or naso-pharynx, which they try in vain to get rid of by hawking and spitting. They are generally convinced that what they expectorate is purulent material which must not be swallowed. In some cases intermittent rises of temperature preceded by shivering attacks have been noticed. There may be considerable loss of weight and marked neurasthenia.

During a period of five years the author observed some 200 cases of this nature in which no cause could be found to account for their troubles except the habit of frequent spitting. Moreover, in the vast majority of these, when the patients had been persuaded to swallow instead of expectorating the saliva, the symptoms of which they complained gradually, but completely, disappeared. The author discusses at some length the possible explanations of this phenomenon. He comes to the conclusion that the saliva must contain in addition to ptyalin and its other well-known constituents some other substance, the loss of which is injurious to the body as a whole. In this connection reference is made to certain experiments which showed that loss by a normal person of a large amount of saliva daily is accompanied by a rapid fall in the body weight. Now there is reason to believe that the processes of oxidation and reduction within the body can only be properly carried out in the presence of a ferment. Such a ferment is known as an oxydase, and it has been found that the parotid gland is an important source of this substance. It is concluded that loss of the parotid saliva by spitting involves loss of much of the oxydase, which is essential to the well-being of the body.

Thomas Guthrie.

NOSE.

Craig, R. H.—*Complete Occlusion of both Anterior Nares.* "Montreal Medical Journal," March, 1908.

The patient, a female, was two years and eight months old when first seen by the writer. The mother stated that the child had been unable to breathe through the nostrils for two years, whereas at birth she could breathe through them freely. There was no evidence of rickets or inherited syphilis. The child was small, anæmic, and nervous, and a characteristic mouth-breather. The nasal bones were flat and saddle-backed. Both anterior nares were covered by epidermis, the same colour as the surrounding skin. It had apparently grown from the muco-cutaneous junction of the nares. The post-nasal space and pharynx were free.

Operation was done under a general anæsthetic, a vertical incision being made through the centre of each plate of skin. Both inferior turbinals were found in contact with the septum, although not united. These were reduced in size by operation, and small silk rubber tubes inserted in the nasal passages to secure drainage. These were regularly changed for cleansing purposes. Six months later they were permanently removed. The result of the treatment was very gratifying, as the child could again breathe freely through both nostrils, while its general health had materially improved.

This is the only case of complete anterior nasal stenosis due to closure by cutaneous membrane that the writer had seen reported. While the cause was doubtful he thought the condition might possibly have been produced by the injudicious use of a catheter, a physician having at one time introduced one into each nostril to give relief for difficult breathing.

Price-Brown.

Wishart, J. Gibb (Toronto).—*Repair of Saddle-nose by Replacement of Bones without Skin Incision.* "Canadian Practitioner and Review," March, 1908.

The patient, now a young woman, received a violent blow upon the nose in colliding with a child when eleven years old. This produced serious nasal deformity, which continued up to the time of examination. There was no history of syphilis and no impediment in breathing, but for cosmetic purposes the patient sought relief.

On examination the nasal processes of the superior maxilla were found to be spread apart, allowing the nasal bones to lie side by side, unitedly forming a flattened surface. The attachment of the upper lateral cartilages to the nasal bones had also been separated, a new attachment having formed at a lower point. The result was a typical saddle-nose, combined with a flattening at the root of the nose.

The operation for relief was conducted as follows: Under general anæsthesia the frontal process of the superior maxillary and the nasal bone on the right side were separated from the lower end of the latter to the upper end by means of hammer and chisel, the work being done on the internal aspect, the skin not being broken. The left side was treated similarly. Then, by means of Adams' septal forceps, the skin being protected by a pad of gauze, the nasal bones were successively loosened from the attachment to the frontal bone and from each other.

To quote from the writer: "The nasal bones being now freely movable, a specially constructed saw was introduced on each side in succession,

through a small opening made in the mucous membrane of the outer wall of the nose, directly opposite to the root of each maxillary nasal process, and guided by the finger on the skin the groove between the cheek and the nose was sawn from top to bottom. The incision with the saw was made deep enough to allow of the production of a green-stick fracture of the nasal processes, the forceps named above being used in the same way as before."

The maxillary nasal processes and the nasal bones were then readily adjusted, and by regular and frequent manual pressure on the part of the nurse during the first thirty-six hours the bones were kept in place. A slight pitting in the centre line below the nasal bones was overcome by injection of paraffin. The result is said to be a perfect one.

Price-Brown.

LARYNX.

Neufeld, L. (Posen).—*On Laryngeal Spasm in the Adult.* "Arch. für Laryngol.," vol. xx, Part II.

The first of the three cases here reported was that of the writer himself. A child living in his house suffered from a severe attack of whooping-cough, during the course of which the writer contracted a violent naso-pharyngeal catarrh. After this had lasted for four days, on rising in the morning and trying to clear his throat he was suddenly seized with a laryngeal spasm which lasted only a few seconds, but was accompanied by marked cyanosis and an intense feeling of suffocation. These attacks were repeated for six days, after which the author was able to check them by the immediate use of a spray of hot Ems water. The upper air-passages, apart from slight catarrhal changes, were normal. The catarrh disappeared after about six months, and although the author has frequently suffered from "colds" since then, there has never been any return of the laryngeal spasm.

Another very similar case is reported in which the patient was an adult male, and the attacks were so severe that it became necessary to keep him in a surgical clinic, in case a tracheotomy should be required. Both this case and that of the author himself were almost certainly examples of an unusual form of whooping-cough.

The third case was an instance of what is known as ictus laryngis, and is of special interest, as the trouble certainly arose as a traumatic neurosis. A smith, aged twenty-three, slept in a room with a smoking grate. He was attacked with acute laryngitis, which was accompanied by attacks of glottic spasm. The laryngitis soon disappeared under treatment, but the attacks of suffocation were repeated for over a year, and often occurred several times a day, so as to render him totally unable to work. The first laryngeal examination was sufficient to bring about an attack, which was characterised by sudden and complete loss of consciousness, deep cyanosis, dilated pupils, and slow pulse. Consciousness did not return for twenty minutes. The attacks occurred almost spontaneously during speaking or laughing, or as a result of mental excitement. They could be arrested by pressure on the larynx. There was no aura.

Thomas Guthrie.

EAR.

Claque (Bordeaux).—*Suppurative Meningitis of Otitic Origin*. "Annales des Maladies, de l'Oreille, du Larynx, du Nez, et du Pharynx," February, 1908.

On October 17, 1907, a female, age not stated, was admitted complaining of pain in the left ear of two days' duration. Examination revealed the case to be acute mastoiditis secondary to chronic suppuration of the tympanum. Headache on the same side was severe. Temperature 39.6° C. There were no cerebral symptoms, but unsteadiness of gait had been noticed on her entry to hospital October 18. The radical mastoid operation was performed. The mastoid process and middle ear were found full of pus and granulation tissue. No fistulæ leading to the dura were discovered. On the following day the headache remained unabated. Temperature 39.5° C., pulse 120, regular, tension good. An examination of the viscera showed nothing abnormal. The reflexes were present. Babinski's test resulted in flexion. There was a tendency to paraphasia. The urine was albuminous. Lumbar puncture. The fluid, which escaped under considerable tension, was turbid and slightly sanguinolent; it contained abundance of polymorphs and streptococci. On October 21 a second operation was performed. The dura of the middle and posterior fossæ were exposed and incised; a small quantity of turbid fluid escaped. The lateral sinus was not thrombosed. Exploration of the cerebrum and cerebellum for pus was attended with a negative result. The patient became comatose and died on October 22.

Autopsy.—No pachy-meningitis. Cerebro-spinal fluid purulent and bloody. Pia mater infiltrated everywhere, especially about the chiasma, tentorium cerebelli and fissure of Sylvius. The subarachnoid space contained pus. No brain abscess. The cranial surfaces of the petrous bone were healthy. The case was therefore one of generalised suppurative meningitis. In regard to diagnosis the question is asked, Was it possible in this case to make a clear diagnosis of meningitis? All the classical signs had been absent, there were no signs of irritation of the meninges of the medulla or cord, but the writer observes that it is within the knowledge of all that occasionally, though the meninges be bathed in pus, clinical evidence may be wanting. The presence of polymorphs and streptococci in the fluid resulting from lumbar puncture rendered suppurative meningitis probable, but by no means certain, for cases have been recorded by Brieger, Delaunay and other observers where a purulent collection, encephalic, intra-dural or thrombo-phlebitic, has discharged itself into the spinal subarachnoid space.

H. Clayton Fox.

Glover, Jules.—*Bilateral Central Deafness; Hereditary Syphilis at the Second Generation*. "Annales des Maladies, de l'Oreille, du Larynx, du Nez, et du Pharynx," February, 1908.

In November, 1900, a man, aged thirty-six, consulted Professor Gaucher for dyspepsia. His tongue was fissured and leucoplastic. He was a heavy smoker; acquired syphilis was suspected, but there was no other evidence in support of this, except that his wife had had one miscarriage. All knowledge of infection was denied. The man had always enjoyed good health; he, however, bore unmistakable stigmata of hereditary syphilis: V-shaped arch, dental prognathism, teeth dwarfed and distorted. This man's son, aged thirteen, came under the notice of M. Gaucher in

1904. He was suffering from interstitial keratitis and choroido-retinitis. The teeth were pathognomic of congenital syphilis. In 1905 bilateral deafness set in suddenly. He had been under treatment at the hands of several specialists, but without improvement. Examination showed the middle ears to be normal. Sonorous vibrations were not appreciated during the use of either the tuning-fork or audiphone; tactile vibrations only were perceived. Throughout the case headache, vomiting, tinnitus, and vertigo had been absent. The labyrinths were considered intact. The eyes yielded to treatment, but not so the deafness. The lad was advised by Professor Gaucher to speak aloud several times daily with a view to preserve the power of speech. Finally the patient was placed in an institution for deaf-mutes. The author remarks that only one such case has been recorded, viz. Guérin's, and then no details of the aural examination were supplied, mention only being made of deafness. Compared with ocular lesions those of the ear are rare in hereditary syphilis of the second generation. In this connection Fournier mentions one case of aural lesion in eleven observations, this one being Guérin's; on the contrary the same author quotes 31 cases of ocular lesions in 116. In conclusion the writer believes the case recorded in this paper to be the first of indisputable central deafness occurring in congenital syphilis in the second generation.

H. Clayton Fox.

Powers, G. H.—*Report of a Case of Caries of the Middle Ear, Mastoid Process, Internal Ear with Extra-dural Abscess, Pachymeningitis, and Destruction of the Semi-circular Cells.* "Boston Med. and Surg. Journ.," April 23, 1908.

This paper is explained by its title.

MacLeod Yearsley.

Emerson, F. P.—*Rosenmüller's Fossæ and their Importance in Relation to the Middle Ear.* "Boston Med. and Surg. Journ.," April 23, 1908.

Points out a source of middle-ear infection hitherto overlooked. Its conclusions are: (1) Pathological amounts of lymphoid tissue are present in Rosenmüller's fossæ in a large number of cases of chronic secretory and suppurative ears. (2) This cannot be detected with certainty by posterior rhinoscopy alone, even where a good view of the vault is obtainable. (3) In every chronic case there should be a routine digital examination. (4) Where much tissue has been found and removed the process of healing should be watched that no fibrous bands form. (5) It is possible in a large majority of cases to predict the involved ear by the condition of the corresponding fossa. (6) Results, where after-treatment is followed, are particularly good in removing abnormal sensations, restoring uniform hearing without fluctuations in the partial or complete relief of tinnitus, and in the prevention of recurring salpingitis. (7) If directions are given to blow one side of the nose at a time and carefully, the affected tube is no more apt to be infected later than its fellow.

MacLeod Yearsley.

REVIEWS.

Diseases of the Nose and Throat. By HERBERT TILLEY, B.S.(Lond.), F.R.C.S.(Eng.). London: H. K. Lewis.

Dr. de Havilland Hall in 1894 first published this work, and in his preface stated that he felt some apology was due for having added

another book to the long list of those dealing with diseases of the nose and throat. The second edition, which appeared in 1901, supplied to a great extent a want which the author of the first work also mentioned in his preface, viz. that it might be thought that the surgical aspect of the subject had not been treated in sufficient detail. The second edition of the work, therefore, by the two authors was a great improvement upon the first, and now we find that it also has been so successful that a third edition has been called for.

In the present work Mr. Herbert Tilley explains that it was with great reluctance he finally consented at the invitation of his colleague, Dr. de Havilland Hall, to take all the responsibility of the manual upon himself.

The book, as it stands, forms one of a "practical series," and consequently bears more upon symptoms, diagnosis, and treatment than abstruse questions to a large extent yet debatable. The first two editions were well received by the profession, and Mr. Tilley, in the present work, has not only carefully revised the different chapters, rewriting some, correcting others, but he has introduced a useful and practical introduction, including the anatomy and physiology of the nasal cavities. To facilitate study a number of excellent drawings of normal and pathological anatomy have been added.

Perhaps the most striking feature of this edition is the attention paid to surgical procedures in the regions of the nose and throat. The practitioner will find excellent rules for his guidance in cases requiring turbinectomy, the removal of spurs and crests on the septum, or the correction of deviations of the latter.

The recent advances in diseases of the different sinuses have also been carefully considered, and excellent though simple rules laid down for diagnosis and operative treatment. This part of the work could only have been written by an accomplished and expert surgeon familiar with the affections with which he is dealing.

The third edition is a very great improvement upon the two which preceded it, and the book fulfils all that the author claims for it as a manual forming one of a practical series. We have no doubt the work will receive the recognition it deserves.

Cosmetic Surgery: The Correction of Featural Imperfections. By CHARLES C. MILLER, M.D. Second edition, enlarged (including the description of numerous operations for improving the appearance of the face). Pp. 160; 96 illustrations. Chicago, 1908.

This little work contains many points of value and will be read with considerable interest. We trust, however, that in a subsequent edition the writer will be a little more detailed in the description of the methods employed. He mentions in his introduction that some members of the profession who have had an opportunity of seeing him operate for featural imperfections may notice that he has refrained from describing certain operations which he practises. We hope that in his next edition he will not so refrain.

BOOK RECEIVED.

Adam Politzer, Professor. *Lehrbuch der Ohrenheilkunde*, 5th edition.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

THE "OTHER SECTIONS" AT THE SHEFFIELD MEETING OF THE BRITISH MEDICAL ASSOCIATION.

A PERUSAL of the intended programme makes the conclusion inevitable that this meeting will be one of exceptional interest to those engaged in our specialties. It is not merely in the Section of Laryngology and Otology that this is the case, but in other sections as well. Thus, in the Section of Anatomy Prof. Symington and Dr. Crymble read a paper on the "Post-natal Development and Growth of the Accessory Sinuses of the Nose." In the Electrical Section Dr. A. D. Reid deals with "Skiagraphy as an Aid to the Diagnosis in the Affections of these Accessory Sinuses." Discussions take place on "The Diagnosis of Pulmonary Tuberculosis by means of the Röntgen Rays," opened on Wednesday by Dr. Lester Leonard, of Philadelphia, and one on "The Uses of Bismuth in the Diagnosis of Conditions of the Oesophagus and Stomach," to be opened on Friday by Drs. Thurstan Holland and Barclay. Moreover, Dr. E. B. Hazelton will, on the latter day, consider "The Present Position of X Rays in Relation to the Treatment of Carcinoma and Sarcoma." Tuberculosis, carcinoma, and syphilis, coming so largely into our work, interest will attach to such papers as Dr. Sequeira's, in the Dermatological Section, on "The Calmette Reaction in Tuberculosis," Dr. Tomkinson's, on "Lupus Vulgaris Treated by Sun Rays," Mr. Charles Ryall's, in the Surgical Section, on "The Technique of Cancer Operations with Reference to the Danger of Cancer Infection," Col. Lambkin's, on "Atoxyl in Syphilis," in the Navy and Army Section, among others.

To come nearer our special branches the Ophthalmological and Odontological sections are the fields for discussions in which we are particularly interested. Thus in the former there will be discussed on Wednesday "The Relation of Disease of the Nasal Accessory Sinuses to Disease of the Eye." Dr. Logan Turner will open the discussion. Mr. George Mackay will comment on the ocular aspects of these diseases and refer to some ocular maladies for which an explanation may be found in accessory sinus disease.

The section of Dental Surgery includes the some what well-worn subject of "Antral Diseases in Relation to General and Special Surgery." Dr. Tilley's introduction promises from the synopsis to be of great interest, and we observe that he makes a special plea for the more universal adoption of the intra-nasal method of drainage, while, however, advocating care in the selection of the method of treatment according to the nature of the case. Mr. Underwood's contribution will be of all the greater value to us because he approaches the subject from the point of view of the odontologist who is at the same time a trained general surgeon.

We need not here refer to the programme of our own Section, which speaks for itself, and gives promise of unsurpassed success under the President, Dr. Wilkinson, and his able supporters.

CHRONIC INFLAMMATORY ŒDEMA OF THE SUBMUCOUS TISSUES OF THE NOSE.

By J. S. FRASER, M.B., CH.B., F.R.C.S.E.,

Assistant Surgeon Ear and Throat Department, Royal Infirmary, Edinburgh.

FORMATION AND FUNCTIONS OF THE NOSE.

THE nasal septum is seldom or never absolutely straight, in fact a straight septum is an abnormally normal one; the outer wall of the nose is thrown into convolutions by the turbinals so as to expose as much secreting surface as possible in the small space available. The inspired air entering the nasal chambers thus strikes against the septum or turbinals before passing back to the naso-pharynx, and is warmed, moistened, and filtered to some extent from dust particles and bacteria before it reaches the cavities of the pharynx and larynx. The nasal mucous membrane is likely, therefore, to be a very active structure; it is well supplied with blood-vessels, and in certain parts, notably in the inferior turbinal region, these vessels take part in the formation of erectile tissue; the size of the

nasal cavities can thus be regulated according to the state of the air entering the nose; the inferior turbinals swell up in cold weather or in dusty atmospheres; excitement also influences the state of engorgement of the turbinals, and the well-known phrase, "open-mouthed with astonishment," would be more accurately replaced by "shut-nosed with astonishment." The size of the inferior turbinals may also be seen to vary during the short period covered by an examination of the anterior nares, and we are probably all familiar with the fact that if we lie on one side in bed the nostril on that side tends to become blocked.

METHOD OF CARRYING OUT THE PRESENT INVESTIGATION.

The number of specimens examined was 70; of these 22 were inferior turbinals, of which 6 were normal, 6 in a condition of slight œdema, 5 markedly œdematous, and 5 in the condition known as "caniliflower hypertrophy." This state, however, is merely one of very extreme œdematous infiltration. Eighteen specimens of the middle turbinal were examined, in addition to 30 which formed the subject (1) of a previous paper. Of the middle turbinals 3 were normal, 10 showed slight œdema, and the rest marked œdematous hypertrophy, or, in other words, nasal polypus formation. In all but a few cases the tissues were removed during life, washed in water to remove blood and mucus from the surface, and placed at once in 5 per cent. nitric acid in spirit. After a week they were transferred to 10 per cent. nitric acid in spirit and changed three or four times according to the size of the specimen. The time required for decalcification varied in specimens which contained apparently an equal amount of bone. The tissues were carried through in the usual way and embedded in paraffin and cut often in serial sections. It was found by no means easy to get good sections of tissues of such varying degrees of density as the turbinals, containing bone, periosteum, loose connective tissue glands, and delicate mucous membrane. The staining method used was the ordinary one—hematoxylin and eosin, but Unna's orcein method was used in addition in most cases for elastic fibres.

SITES OF CHRONIC INFLAMMATORY ŒDEMA IN THE NOSE.

(A) *The Septum Nasi*.—(1) Anteriorly in the region of the tubercle; (2) Posteriorly a swelling is often seen by posterior rhinoscopy apparently in the region of the posterior border of the vomer high up towards the roof of the choanae, giving rise to an

appearance that may be compared to the "ace of hearts." This is probably merely an extension backwards of the œdema in the region of the tubercle.

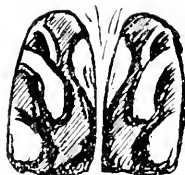
(b) *Middle Turbinal*.—The anterior end, lower border, or outer surface are most frequently affected; these parts are the most dependent.

(c) *Inferior Turbinal*.—The anterior end is affected rather more often than the posterior end, but frequently the anterior end, inner surface, and lower border, as well as the posterior end, are all affected.

NORMAL STRUCTURE OF INFERIOR AND MIDDLE TURBINAL BODIES.

Inferior Turbinal.—(Fig. 1) This consists of a bony framework with an irregular surface; within this we find so-called marrow spaces lined by delicate connective tissue and containing a central thin-walled blood-vessel. The periosteum consists of two or three

FIG. A.



layers of elongated cells, and just outside this there is a dense layer of elastic tissue from which strands of elastic fibres run out radially in all directions towards the mucous membrane (Fig. 7). Beyond the periosteum we have a layer of fairly dense connective tissue containing the larger blood-vessels and some unstriped muscle-fibres, and outside this again the erectile tissue-layer made up of thin-walled blood-vessels of irregular size and shape; the erectile tissue is better marked at both ends and along the inferior border of the turbinal. Just under the superficial epithelium and its basement membrane we have the racemose mucous glands (Fig. 2), the ducts of which open through the basement membrane usually into smaller hollows on the surface. Immediately under the basement membrane there is a thin layer of elastic fibres running parallel to the surface but connected with the fibres that run out radially from the periosteum; the whole turbinal has thus a framework of elastic fibres which causes it to return to its normal size when vascular engorgement is over. The covering layer consists

PLATE I.



Inner
surface,
showing
slight
oedema

Glands



Outer
surface
more
normal
in ap-
pearance

FIG. 1. NORMAL SECTION TURBINAL: the bony core of the turbinal is cut off, but the figure shows the normal blood vessels in the periosteal layer, the blood spaces best marked along the lower border and inner surface, the mucosa is glands just under the basement membrane, and the superficial epithelium absent in parts. Note the small cell infiltration of superficial layer most marked on inner surface. $\times 60$ diam.

FIG. 3. EARLY INFLAMMATORY (OEDEMA of the inferior turbinal: superficial epithelium is absent; note that the glands are slightly pushed inwards towards the bony core of the turbinal. The oedema of the septal surface of the turbinal is shown when contrasted with outer surface where the tissues are almost normal. $\times 60$ diam.



FIG. 2. NORMAL MUCOUS MEMBRANE OF inferior turbinal. Note the normal epithelium of the turbinal, what appear to be dilated ducts of the glands; this appearance may be due to the section of the gland duct; small cell infiltration of the superficial layers, 2 between gland ducts. $\times 50$ diam.



Normal
bone

Gland duct opening
hollow between the papillae

FIG. 4. Marked chronic inflammatory oedema of the inferior turbinal, "enlarged hypertrophy": the glands are markedly displaced inwards; dilated ducts are seen opening into the hollows between the papillae in the lower part of the section; the blood spaces are few and small; the bony core of the turbinal is, however, quite healthy; the walls of the blood vessels appear to be considerably thickened. $\times 60$ diam.

Note: as the microscopical section has been made in the coronal plane.

TO ILLUSTRATE A PAPER BY MR. J. S. FRASER ON "CHRONIC INFLAMMATORY OEDEMA OF THE MUCOUS TISSUES OF THE NOSE."

of ciliated columnar epithelium, beneath which are several layers of cubical or irregular cells situated upon the basement membrane.

Blood supply: The larger vessels run near the periosteum more or less parallel to the long axis of the turbinal; from these smaller vessels run radially outwards to the blood sinuses and to the mucous glands, and, finally, very small vessels ramify just under the basement membrane.

Normally in living people there is always a certain amount of small-cell infiltration under the basement membrane and around the glands and superficial blood-vessels; it is only in the unborn that this is not found (Kubo [2]).

Middle Turbinal.—(Fig. 6.) This is much the same as that of the inferior turbinals, but with the following differences: the bone is thinner and altogether more delicate; not infrequently there is a definite cell in the middle turbinal lined with ciliated epithelium, in fact, in these cases the middle turbinal contains one of the ethmoidal cells. The erectile tissue is not so marked in the middle turbinal as in the inferior and the whole structure is looser and more delicate. From an anatomical point of view we must remember that the middle turbinal is situated higher up in the nose than the inferior.

MICROSCOPICAL APPEARANCES IN CASES OF ŒDEMA OF THE MIDDLE AND INFERIOR TURBINALS.

(a) *The Inferior Turbinal*.—After writing a paper on "The Ætiology of Nasal Polypus," it occurred to me that further light might be thrown on this question by the examination of the inferior turbinal bodies, and I was not surprised to find that the changes leading to so-called hypertrophy of the *inferior* turbinals were exactly similar to those seen in the middle turbinals in cases of nasal polypus formation.

It is necessary in the first place to distinguish between engorgement of the inferior turbinals due to distension of the blood spaces (cavernous tissue) and œdema of the submucous tissue (so-called hypertrophy of the inferior turbinals). This can readily be done by the application of cocaine to the turbinal; vascular engorgement goes down within a few seconds, whilst œdema is little, if at all, affected. In some cases both conditions are present, and, on the application of cocaine, the turbinal shrinks to some extent, but still remains considerably enlarged. It is extremely probable, however, that chronic engorgement is the first stage of inflammation, leading

to cedematous infiltration when changes have occurred in the walls of the blood-vessels. In early cases of cedema of the inferior turbinal, the process commences just under the basement membrane, which is frequently thickened (Fig. 3). Kubo considers this thickening to mean inflammation; the leucocyte infiltration is increased, especially round the vessels and glands, and, in some cases, amounts almost to the formation of lymph nodules. The glands are slightly pushed inwards by the cedema and the ducts dilated; the blood spaces, periosteum, bone, and marrow are not affected.

As the cedema increases (Fig. 4) the glands and blood spaces are pushed further back, and the surface of the turbinal tends to become crenated or scalloped, as seen in sections—papillary, as seen on surface view. This is due to the gland ducts tacking down the mucous membrane at various spots, and can be well seen in the posterior ends of the inferior turbinals by posterior rhinoscopy in cases of so-called “mulberry hypertrophy.”

In the cedematous submucous tissue there are a large number of cells showing myxomatous degeneration, and it is due to this fact that nasal polypi were so long regarded as myxomata.

Even in the most marked conditions of cedema of the inferior turbinal—the so-called “cauliflower hypertrophy”—the surface epithelium is but little changed (Fig. 5) and the cilia are well preserved; here and there leucocytes may be seen making their way through the superficial epithelium to the surface; this fact accounts for the muco-purulent discharge present in so many of these cases.

If we examine one of the papillae on the surface of such an inferior turbinal under a high power, we are at once struck by the close resemblance to a nasal polypus.

The changes in the inferior turbinal are more marked on the inner surface, *i. e.* the surface next the septum over which the air current passes (Fig. 3).

In advanced cases there may be some thickening of the periosteum, but the bone and marrow spaces are always normal so far as my observations go. Finally, I have noticed that in these cases the blood spaces are usually small; I have remarked before that they are pressed towards the bony centre of the turbinal by the cedema which occurs between them and the mucous membrane, and this fact probably accounts for their diminution in size.

(b) *Middle Turbinal.*—The first change noted is cedema of the connective-tissue layer just under the basement membrane (Fig. 8) :

PLATE II.



FIG. 5. Marked chronic inflammatory edema of posterior end of inferior turbinal. Notice edema of superficial layers and displacement of glands and blood spaces.

× 6 diam.



FIG. 6. Normal middle turbinal. Note the more delicate structure of the middle turbinal; the glands are numerous and quite near to the surface; the blood spaces are small and fewer than in the inferior turbinal.

× 6 diam.



FIG. 7.—Elastic tissue of the middle turbinal. Around the periosteum the fibres form a dense network from which more delicate strands radiate out into the substance of the turbinal surrounding the blood spaces and glands; just under the basement layer there is a delicate layer connected to the radiating fibres.

× 50 diam.



Glands

Glands

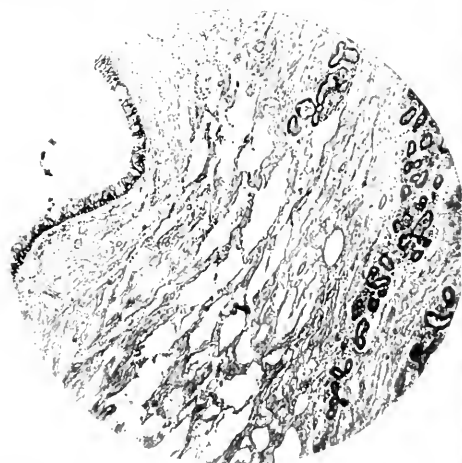


FIG. 8. Early chronic inflammatory (edema) of the middle turbinal, or possibly middle turbinal. Note large connective-tissue spaces containing serum along the lower border of the turbinal; the glands in this region are displaced inwards; the bone is healthy.

× 6 diam.

FIG. 9. Higher power view of same specimen as shown in Fig. 8. Note glands pushed inwards by edema of superficial layers.

× 50 diam.

In all cases the microscopic section has been made in the coronal plane.

TO ILLUSTRATE A PAPER BY MR. J. S. FRASER ON "CHRONIC INFLAMMATORY (EDEMA) OF THE SERMUCOUS TISSUES OF THE NOSE."

the connective-tissue spaces are enlarged and contain serum, and the glands and blood spaces are gradually displaced inwards towards the bony centre of the turbinal as the œdema increases. The epithelial covering of the turbinal, along with the basement membrane, is of course pushed away from the bony framework, and later on comes to hang down in the nasal cavity; this is the condition we recognise clinically as "polypoid middle turbinal." The ducts of the glands in many cases become obstructed—on account of the œdematous infiltration—and in this way large cystic spaces are developed.

It is very difficult to speak with certainty as to the condition of the mucous membrane; during the course of hardening, decalcification, embedding, or staining, it often happens that the surface epithelium gets separated and lost; but it is also remarkable that in cases of marked nasal polypus formation the superficial epithelium is apparently quite normal.

CAUSES OF ŒDEMA.

Without doubt the two most common pathological conditions affecting respectively the middle and inferior turbinals are nasal polypus and inferior turbinal hypertrophy (so called). Differences in the macro- and microscopic appearances are due to, *firstly*, difference in the structure of the two turbinals, and, *secondly*, difference in anatomical position, or, in other words, the middle turbinal is of looser and more delicate structure and situated further from the floor of the nose.

In both cases the cause of the œdema is to be found in repeated or severe attacks of acute catarrh (coryza): in this condition the turbinals are hyperæmic and slightly œdematous, but as a rule resolution occurs and the parts return to normal: on the other hand in a few cases the inflammation becomes chronic, and the deeper layers of the mucous membrane are involved. Clinically, these chronic cases are characterised by constant nasal discharge (mucous or muco-purulent) and nasal obstruction; the patients complain that they are never free from a "cold" in the head, and they usually state that they have suffered from nasal discharge and obstruction for several years. The tissues of the nose are thus constantly soaking in their own secretions, and a return to normal is prevented. It has been pointed out to me that an analogy may be found in the case of papilloma of the bladder: this condition is so serious because it is impossible to keep the

parts dry, whereas warts on the hand tend to shrivel up and disappear when moisture is excluded.

On going over the cases of inferior turbinal enlargement which presented themselves at Dr. Logan Turner's clinic during the year 1907, I found that the actual number was 242, but the great majority of these were cases of vascular engorgement. In most of the cases there was only slight enlargement, but it was noted that in 30 there was a co-existing polypoid condition of the middle turbinals, and probably this number would have been greater had cocaine been applied in all instances to the inferior turbinals so as to obtain a better view of the middle turbinal region. Of the 79 cases classified under the head of nasal polypus, there were 29 with co-existing enlargement of the inferior turbinal.

FORMATION OF POLYPI.

Edema occurs beneath the mucous membrane along the lower border or outer surface of the turbinal: the mucous membrane thus sags down in the nose, and in advanced cases reaches the floor of the nasal cavities, or even protrudes from the anterior or posterior nares.

Before this stage is reached, however, the developing nasal polypus is acted upon by the respiratory air currents, and its base of attachment is specially dragged on in the act of blowing the nose: gravity also tends to increase the formation of the œdematous swelling once it has begun. From what has been said it is not difficult to understand that in some cases the base becomes constricted so that a pear-shaped swelling results, but in my opinion the genuine pear-shaped polypus is much less frequent than is generally believed. I hold that the loop of the snare is frequently responsible for the pear shape, and that in most cases the polypus is broad based along the lower border or outer surface of the turbinal. If we think of the frequency of œdema in inflammation of such loose structures as the prepuce, scrotum, and lower eyelid, we need not wonder that it occurs in the chronic inflammation of the middle turbinal region of the nose. In the inferior turbinal the case is somewhat different; here the tissue is denser, and the lower border of the turbinal is already almost on the floor of the nasal chamber; consequently we do not meet with such marked œdematous swelling. At the *posterior* end of the inferior turbinal we may, however, in advanced cases, see a large papillary mass of œdematous tissue hanging down in the posterior surface of the soft palate.

PLATE III.

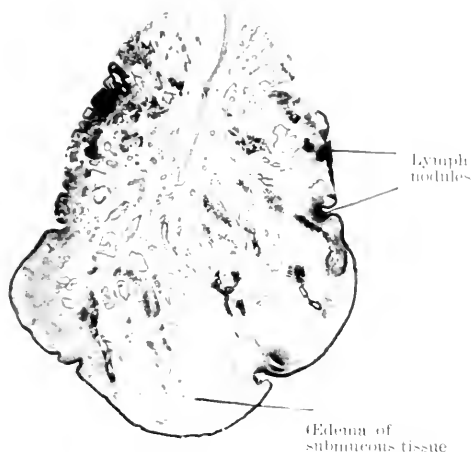


FIG. 10.—Slight chronic inflammatory edema of the middle turbinal; slight dilatation of gland ducts; inward displacement of glands and blood spaces. Note marked small cell infiltration of superficial layers.



FIG. 11.—Edema of middle turbinal in case of ETHMOIDAL SUPPURATION. The normal tissues are crowded towards the bone; the thickened lining membrane of the cell in the middle turbinal is well seen, and the small cell infiltration of its mucous membrane. $\times 6$ diam.



FIG. 12.—This section shows the appearance of the tissues at the base of the polypoid swelling. Note the dilatation of the lymphatic vessels and spaces. In the centre of the field a blood-vessel is seen containing organised tissue—probably a thrombus. $\times 50$ diam.



FIG. 13.—SECTION OF TYPICAL "NASAL POLYPIUS," showing large connective-tissue spaces filled with serum, dilated gland ducts and small blood-vessels; the superficial epithelium is almost normal. $\times 6$ diam.

In all cases the microscopic section has been made in the coronal plane.

TO ILLUSTRATE A PAPER BY MR. J. S. FRASER ON "CHRONIC INFLAMMATORY OEDEMA OF THE SUBMUCOUS TISSUES OF THE NOSE."

Inflammation in any situation is always associated with exudation, and the looser the tissue the greater the amount of exudation. I believe that in early cases of rhinitis we have an excessive amount of vascular turgescence associated with a slight degree of oedematous infiltration; this goes down under cocaine application. If the inflammation becomes chronic the oedema increases most probably on account of changes in the walls of the blood-vessels and blood spaces. Lymphatic and venous obstruction no doubt play a part, and I have observed swelling of the endothelial cells lining the lymphatic vessels in one or two of my specimens. Watson Williams (3) recently showed a specimen of nasal polypus in which a lymphatic vessel appeared to be blocked by inflammatory products. Hopman (4) thinks that the cause of the oedema is some impairment of the circulation in the efferent venous vessels, and the engorged state of the small veins in many of the specimens

FIG. B.



examined by me supports this theory (Fig. 12). Grünwald (5) explains the oedema by changes in the vessels of the nature of peri- and endo-arteritis, but one is bound to note that even in apparently normal turbinals the vessel walls seem to be abnormally thick. Goodale (6) says, "It is possible that the inflammatory infiltration which penetrates the substance of the turbinals may lead in some places to a stasis from compression of the veins"; the same writer entirely disagrees with the bone disease theory of nasal polypus formation.

In advanced cases the elastic fibres are hard to find—at least in the oedematous parts; near the periosteum they are present and normal in appearance. The striking similarity of the changes in the middle and inferior turbinals will be apparent from the illustrations, and nobody has yet said that inferior turbinal oedema or hypertrophy is due to bone disease; we may well ask why oedema of the middle turbinal should be due to this cause? It is true that the bone is often affected in advanced cases of nasal

polypus formation, associated with ethmoidal suppuration, but in this case the bone disease is *the effect*, not the cause (Fig. 11). Yonge's (7) theory as to the causation of nasal polypi was not well received at the last meeting of the British Medical Association at Exeter, and as I have dealt with it in a previous paper I need not do so again.

In regard to Grünwald's theory that nasal polypi are associated with sinus suppuration, I can only state that this appears to be true in only 50 per cent. of cases. I think we are not far wrong if we regard the character of the discharge present as diagnostic—that is to say, if nasal polypi are found associated with a clear watery discharge no sinus suppuration is present; if the discharge is muco-purulent sinus suppuration may or may not be present; if the discharge is distinctly purulent then sinus suppuration is present.

Morell Mackenzie, used to urge against the inflammatory origin of nasal polypi that while nasal catarrh is very frequent in children, polypi are extremely rare. There are two good answers to this objection: (1) the middle turbinal region is not easy to examine in children and minor degrees of œdema may easily pass unnoticed; and (2) it is extremely probable that the vascular changes leading up to marked polypus formation take years to occur—in other words, children have ceased to be children when polypi are developed.

In conclusion, I wish to express my thanks to Dr. Logan Turner, who has kindly allowed me to make use of his clinical material, to the Royal College of Physicians (Edinburgh) for permission to work in their Laboratory, and to Dr. James Ritchie for much advice and assistance in carrying out the work.

REFERENCES.

- (1) *Scot. Med. and Surg. Journ.*, April, 1907.
- (2) *Archiv. f. Laryngologie*, Bd. xix, S. 202.
- (3) *Proceedings of the Royal Society of Medicine*, 1908.
- (4) *Wiener med. Presse*, 1883.
- (5) "Nasal Suppuration," 1900.
- (6) "Diseases of Eye, Ear, Nose and Throat," by Posey and Wright, p. 706.
- (7) "Polypus of the Nose," 1906.

LARYNGOSTOMY AND TRACHEO-LARYNGOSTOMY IN THE CURE OF SEVERE CHRONIC STENOSIS OF THE LARYNX OR TRACHEA, ESPECIALLY WHEN CICATRICAL.

BY Drs. SARGNON AND BARLATIER,
OF Lyons.

(Translated by MR. CHICHELE NOURSE.)

(Continued from page 372.)

The Median Division of the Scar-tissue.—After the tracheo-laryngeal cavity has been thoroughly anaesthetised and well dried, it is to be strongly illuminated, so as to allow the operator to find his bearings, which is no easy matter in a very cicatricial larynx. The scars which are the result of decubitus after intubation, are always situated in the cricoid region. Killian advises and practises complete median section of all the cicatricial tissue, as far as the posterior wall, which is cartilaginous at the cricoid and soft near the thyroid.

In cases of extensive cohesion it is necessary to proceed with caution, so as not to incise the œsophagus. Killian does not excise the cicatricial tissue; we have followed and advised the same rule, and, so far, we have found it to answer very well. For, as we shall see later, the tissue of the cicatrix melts away under contact with the rubber, but a median cavity must be made in which to lodge the drainage-tube. If the cicatrices are lateral we let them alone, as the tube causes them to melt away. This, we think, is the essential point of Killian's method.

However, in cases of limited membranous cicatrices we see no objection to practising excision, as the sloughing is thereby proportionately diminished. Similarly, in certain cases of very narrow stenosis we should do intentionally what we did once before—the posterior median section of the cricoid ring. A very large dilatation is thus obtained at once. But in cases like these we prefer to plug with gauze impregnated with vaseline for the first few days.

The Suture of the Larynx to the Skin.—It is necessary to join the mucous membrane and tracheo-laryngeal cartilages on the one side with the skin on the other; and, in the case of cicatricial cohesion, the lateral parts of the cicatrices must be joined to the skin.

Silver wire must be rejected as it cuts the tissues, and the suture very quickly becomes too loose. We use with success fairly strong silk; and, in order to prevent it from becoming too slack,

we take up the cartilage, then the muscle and then the skin at some distance from the edge.

This is the plan adopted with Dr. Vignard in our later cases. Three points of suture are usually sufficient. We do not multiply them as each suture is the centre of a focus of sloughing. When the cartilages are ossified we have been obliged to suture the skin to the external perichondrium.

Is it necessary to suture? In two of our cases, where no sutures were inserted, granulation and epidermisation appeared to us to be distinctly a longer process than in the others. We think, therefore, that time is gained for epidermisation by careful suturing. The stitches should not be cut but only removed when they come out of themselves.

The Italian School, and in particular Professors Ruggi and Canépele, do not suture the larynx to the skin, as they consider it superfluous.

When the suturing has been completed, bleeding must be stopped. The parts are then cleansed, and if local anæsthesia has been used, the patient must be made to cough so as to empty the trachea and bronchi before inserting the cannula.

This is one of the great advantages of local anæsthesia by Schleich's infiltration method.

The Adjustment of the Drain and of the Dressing.—The operator now puts the cannula in place. Several fits of coughing generally happen, with the expulsion of blood-stained mucus, which must be got rid of by removing and cleaning the inner tube.

As the dilating drain, we usually use a red rubber tube with rather a thin wall, well sterilised, and, of course, of variable length. In children, six or seven centimetres is the usual length required at the beginning; and we begin with a tube of No. 15 or 16 calibre, sometimes with a No. 20, if the stenosis is less narrow. The drain is cut straight at both ends, or well slanted at one of them. One of the points we consider most important in order to render the dilatation easily borne is to carefully round off the edges of the drainage tube. This is easily done by passing each end of the tube through a flame, which slightly melts the rubber, and to wipe away the melted part with a tampon moistened with ether, alcohol, or chloroform.

A thread of silk is passed through the drainage tube, and fixed in such a way that, if a drain with a slanting end is used, the longest side of which will be at the back, the knot will be upon the front, that is on the shortest wall. During the first stages, for the

first month at least, we pack the drain with gauze, and if required, fix it by the thread. This precaution prevents food, and especially liquids, from passing into the trachea.

Great care must be taken never to pack the drain from the lower end. This would be very dangerous, for if the gauze slipped down into the trachea there would be a risk of it causing asphyxia. In one of our cases the gauze was probably not tight enough, as it passed down into the trachea and was ejected through the cannula without further incident.

We generally smear the drain with vaseline, so that it is better tolerated and does not cause ulceration.

The top of the tube should not extend higher than the superior extremity of the arytenoids so as not to cause nausea or retching. Below, if it is not slanted, it touches the convexity of the cannula; if it is slanted it passes beyond this level, and the dilatation is increased. For this reason we prefer the drain with a slanting end.

Sometimes, when the cavity to be dilated is very irregular, we use two pieces of tube, one partially inserted into the other, the whole forming a cylinder of varying calibre at adjoining points. This double tube is placed in the larynx and trachea so that the largest part of the passage to be dilated corresponds to the largest part of the rubber tube.

Quite recently in one of our cases Dr. Fournier, finding some difficulty in completing the dilatation, made use of an extremely ingenious and practical plan, which we now use with success in difficult cases. He uses a longer tube without a bevel, having a hole in its front wall, so as to allow the cannula to pass into the interior of the drain. In this way the cannula and the drain are totally immobilised, the one by the other; and by using a cannula largely fenestrated and with a plug the breathing can be rendered completely buccal at will. The arrangement is a little difficult to introduce: the drainage tube is inserted first, then the cannula, and a thread of silk fixes the two. Naturally this plan cannot be adopted at the commencement of the case.

The Italian school, and notably Camépele, use for dilatation tampons of gauze or cotton completely covered with thin gutta-percha. They are very yielding and elastic, and, Camépele asserts, ulcers from pressure can be thus avoided. The gutta-percha prevents the tampon from adhering to the inner surface of the larynx and thus hindering the process of cure. The size of tampon can be varied according to necessity, and is very easy to make.

When a ganze plug is employed, as is sometimes done by us when india-rubber causes too much irritation, it should be arranged as Mickulicz does it, or in the form of a sausage fastened by threads. Strips of ganze have the great disadvantage of being sometimes sucked in, passing behind the cannula and getting below it. This accident happened to one of our patients, and had it not been for the presence of mind of the nurse, who took out the cannula and the strip, we should have had a disaster.

We should add that it is as simple, in our opinion, to use tubes of rubber so gauged as to allow a very gradual progress in the dilatation. Being very smooth and well vaselined they are very well borne.

The Attachment of the Thread.—In the first place, it is necessary to have a fixation thread, in order to prevent the tube from falling into the trachea, and to limit in some degree its tendency to rise into the mouth and cause nausea. At first we simply tied the two ends of the thread at the back of the neck; now, so as to limit more effectually the upward movement, we attach each thread to the lateral rings of the outer cannula, taking care to leave them loose enough to avoid cutting the skin by the thread. This is the best way of fixing it. The thread must be passed well through the tube, and not too near the anterior wall, as it might cut out, and let the tube fall into the trachea.

When the drain has been put in place we apply the dressing. This consists first in a plug of white gauze, covered with vaseline, put between the tube and the lips of the laryngostomy, and carefully packed into the upper angle, which has a tendency to get narrow, and to heal up very quickly. The lower angle, being kept open by the cannula, does not present this tendency. Over all we place gauze, and, for the first dressings, a large pad of wool, for the secretions and oozing are considerable. In applying the bandage, if the shield of the cannula has not been cut away above, care must be taken not to cover the fixation screw of the inner tube, as, immediately after the operation, the latter requires to be taken out very frequently and cleaned.

After the operation and the application of the dressing the patient is put back to bed, with his head in the horizontal position, or even a little lowered, so as to prevent as far as possible any pulmonary complications. It is also a good plan to isolate him for the first few days, or at any rate not to put him beside a very septic case.

For the first two or three days the nourishment should be

entirely liquid or semi-liquid. Liquids should be given with a spoon or feeding cup, so as to avoid any risk of their running into the trachea. During the first day the inner cannula is to be very frequently cleaned every hour. At first the dressings should be changed every day, as they are usually much soiled, on account of the superficial sloughing which is then going on. The drainage tube is to be taken out every day. In case of marked sloughing, the dressing must be changed twice a day.

After the experience of one unfortunate case, which proved fatal from descending sloughing and consecutive broncho-pneumonia, we recommend that scrupulous attention be paid from the outset, not only to the sloughing process but also to the condition of the lungs and the bronchial tubes.

The Dilatation and the Dressings.—Although they really take place simultaneously, we divide these two acts into two parts, so as to simplify and render clearer this extremely important question, which is much more important than the operation itself, as it is on the details of the management afterwards that the success of the operation depends.

Laryngostomy for cicatricial contractions, however well performed, certainly ends in a failure if the dilatation and the dressings are not done very carefully and in a methodical fashion, and always, or nearly always, by the same person. This is the essential condition for success. In order to obtain it a steadfast purpose is needed, for unexpected difficulties often arise, which must be met in a rational way each time. We may even add that the details of the technique vary, so to speak, with each patient.

The treatment is, in fact, made up of a multitude of little details which, when modified and perfected, help to shorten considerably its duration. Formerly six months were required for ordinary cases, and a year for serious cases such as those with complete closure. Now, about three months and a half and six months are sufficient for us.

(To be continued.)

FRENCH CONGRESS OF LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

*Being the Annual Meeting of the Société française d'Oto-rhino-laryngologie,
May 11-14, 1908.*

President, DR. FURET, in the Chair.

*Abstract of Proceedings by DR. A. R. SALMO, condensed and
translated by DR. ANDREW WYLIE.*

THE PRESIDENT referred to the deaths which had taken place among members of the Society during the year, and offered a welcome to the foreign members and visitors. A number of ordinary and corresponding members were then ballotted for and elected, and the following series of papers and communications were read and discussed. (Those mentioned only by title we hope to produce in abstract in a subsequent number.)

Dr. BRINDEL (Bordeaux).—*Influenzal Sinusitis.*

Besides acute sinusitis the author describes a more virulent form due to influenza. It is generally seen by physicians, and therefore not described by rhinologists. The author narrates seven cases and his personal experience of the disease. It begins like acute otitis, with first a serious, then a purulent discharge, and severe circum-orbital pains. The disease is contagious. It lasts fifteen days and gradually subsides. The treatment consists of warm fomentations and sedatives.

Dr. RAOULT (Nancy).—*Sarcoma of the Left Nasal Orifice and Frontal Sinus; Operation.*

The case is a child, aged fifteen, last seen by the author in 1901. The left nostril was obstructed by a greyish mass, a part of which was removed for examination and was pronounced to be a simple growth. Severe epistaxis having occurred and the frontal sinus becoming affected the whole growth was scraped away, and for two years the patient was practically well, but in 1905 the author found several other growths, which were removed, and in 1907 another recurrence took place, and death ensued.

This case is interesting as the histological examination did not help the diagnosis.

Dr. GAULT (Dijon).—*The Treatment of Ozena by Injections of Solid Paraffin.*

Dr. PONTIÈRE (Charleroi).—*A Naso-pharyngeal Cause for Chorea.*

Dr. BOUVILLOIS (Paris).—*Resection of the Nasal Septum; Indications; Operation; Results.*

In the discussion Drs. Lermoyez and Moure expressed the opinion that the surgical methods practised so extensively beyond the Rhine were suitable to patients of Teutonic origin but not to those of the Latin race. They referred to the simpler methods of restoring nasal patency, such as removing spurs, portions of turbinated bodies or applying the cautery, while at the same time expressing admiration for Killian's operation.

Dr. GLOVER (Paris).—*The Development of the Nasal Septum in Infants and Young Children, and the Operation for Adenoids.*

In infants Dr. Lermoyez recommended forceps for fear of the entrance of fragments of adenoids into the larynx if ring-knives were used.

Dr. LAVRAND (Lille).—*Two Cases of Polypi from the Naso-pharynx, with Histological Examinations.*

These cases were remarkable for the amount of capillaries and veins when compared with polypi in general. The growths consisted of connective and vascular tissue and were therefore inflammatory.

Dr. TEXIER (Nantes).—*The Point of Insertion of Naso-pharyngeal Polypi in Two Cases observed and submitted to Operation.*

The points of insertion of these two polypi were not mesial but unilateral. One pedicle was attached to the upper border of the choanæ and the other to the sphenoid.

Dr. CHAVANNE (Lyons).—*Foreign Body in the Maxillary Antrum.* This was a portion of the root of a tooth.

Dr. JACQUES (Nancy).—*Pathological Anatomy and Treatment of Naso-Pharyngeal Fibrous Polypi.*

Contrary to the old classical views the writer found the site of origin to be intra-nasal and not naso-pharyngeal. The pedicle,

always wide, was in every case attached to the body of the sphenoid in the hindmost segment of the roof of the nasal cavity. The best mode of access was by the naso-maxillary opening devised by Moure.

Dr. LABARRIÈRE (Amiens).—*Maxillary Sinusitis and Gangrene of the Lung.*

Dr. JACQUES (Nancy) and Dr. MATHIEU (Challes).—*The Treatment of Certain Intractable Synechiæ.*

The procedure the author recommends is :

(1) To perforate the base with the galvano-cautery.

(2) After the canterised part is healed to insert an ivory splint of the size of a shirt-button, and olive-shaped, for at least fifteen or twenty days.

(3) On removing this, to canterise the remainder of the synechia.

Dr. BONAIN (Brest).—*General Anæsthetics for Short Operations.*

Equal volumes of ethyl chloride and chloroform. The dosage of the mixture varies with age as follows: From one to five years, $2\frac{1}{2}$ c.c.; from five to thirteen, about 5 c.c.; from thirteen to seventeen, about $7\frac{1}{2}$ c.c.; and above this, 10 c.c. The proportion is 1.5 grammes for every 10 kilos. of body-weight, and the duration of the inhalation a minute to a minute and a half.

Dr. DUFOUD (Bordeaux).—*Epithelioma of the Naso-Pharynx.*

The author states this is a rare condition. There was no pain, the only abnormal symptom being difficulty in breathing.

Dr. VACHER (Orleans).—*The Mechanical Drill in Operations on the Ear and Nose.*

The author uses an electric dynamo with a brake controlled by the left hand, and capable of being instantly started and stopped. He employs it for antrectomy, radical mastoid operation, removal of the attico-antral bridge or outer wall of the attic, trephining the temporal fossa or other parts of the cranium, frontal, maxillary or sphenoidal sinusitis, enlargement of the osseous nasal orifice, and septal operations.

Dr. LUC (Paris).—*Local Anæsthesia in the Radical Operation for Suppuration of the Maxillary Antrum.*

The method advised by Luc is to anæsthetise the nose first by a

5 per cent. solution of cocaine and adrenalin, then to inject a 1 per cent. solution of cocaine into the alveolar mucous membrane. After an opening is made into the antrum, the inside is thoroughly anaesthetised with 5 per cent. solution of cocaine and adrenalin. The operation is performed without pain or hæmorrhage, and is useful in patients who will not have a general anaesthetic.

Dr. MEXON (Nice).—*A Large Calculus Removed from the Tonsil.*

The calculus was large, $2\frac{1}{2}$ centimetres in length, $1\frac{1}{2}$ in breadth, and $\frac{1}{2}$ in thickness, weighed 5 grammes, and was irregular in outline. It could only be removed with a hook—forceps crushed it.

Dr. TRETROP (Antwerp).—*An Acoumeter to Measure Sound in Millimetres.*

Dr. JACQUES (Nancy).—*A Case of Peritonsillar Abscess with Death from Thrombosis of the Carotid Sinus.*

The patient was an alcoholic, aged forty-six. An early galvanocautic incision was performed and free drainage ensued, but septicæmia followed and in seven days death preceded by coma.

Dr. JACQUES (Nancy).—*The Iodide Treatment of Tubercular and Lupoid Ulcers in the Throat.*

The author considers that the good results were due to the excitement of the salivary glands and free salivation. The results confirm the views expressed by Grünberg.

Dr. LABARRIÈRE (Amiens).—*A Case of Epithelioma of the Mastoid cured by X rays.*

Dr. TRÉTRÔP (Antwerp).—*Paralysis of both Vocal Cords after Influenza.*

The author quotes six cases of this sequela of influenza due to the toxin. The cases were all cured by tonics, etc.

Dr. TRÉTRÔP (Antwerp).—*Nasal Diseases in Singers.*

The nose is a most important organ in a singer. When diseased or obstructed the treatment should be local and of a simple character. Drastic nasal surgery often injures the voice.

Dr. COLLET (Lyons).—*Laryngeal Symptoms in Friedrich's Disease.*

The author describes several laryngeal symptoms in a case

extending over five years; he describes crises characterised by difficulty in swallowing, difficulty in breathing, and rapidity of the pulse.

Dr. COLLET (LYONS).—*A Case of Caseous Sinusitis.*

Cured mainly by douching. The case is cited as illustrating the theory that caseous rhinitis is a "cured sinusitis."

Drs. BOULAY and LE MARC'HADOUR. — *Notes on Pharyngeal Parasthesia.*

This is due to different causes, peripheral, nervous, and distant organs, such as liver, stomach, etc. The treatment is moral—to calm the patient's mind that nothing serious is wrong, and suggestive treatment, as hypnotism, is advocated. The galvanic cauterly is condemned, but the application of menthol in olive oil is recommended.

In the discussion which followed parasthesia was proved to be sometimes a symptom of more severe diseases, as incipient cancer, etc., therefore the diagnosis called for careful consideration.

Dr. GAUDIEF (Lille).—*Bier's Method in Throat and Ear Diseases.*

The author finds that the method of causing passive hyperæmia by means of the elastic bandage or dry cupping hastens healing and also lessens pain in such diseases as tonsillitis, acute otitis, furunculosis of meatus, mastoiditis. He considers the elastic bandage better than the suction apparatus.

Dr. MASSIER (Nice).—*Tabercular Perichondritis of the Larynx: Partial Epiglottectomy: Elimination of the Sequestrum and Tracheotomy.*

The author advises epiglottectomy to relieve the dysphagia and also tracheotomy where there is much œdema and liability to asphyxia. This should be done soon to relieve the patient.

Dr. CANYARD (Paris).—*Esophagoscopy.*

The author quotes several cases:

(1) One case of intractable stricture caused by sulphuric acid. By this method a small bougie like a tent was passed which swelled up and dilated the stricture so that a large bougie could be passed and patient enabled to swallow semi-solids. The condition returned with fatal results.

(2) Cicatricial contractions in a strumous child were greatly relieved by dilating in this manner.

- (3) Cancerous growth in the œsophagus was diagnosed.
- (4) A coin was extracted after being four days in the œsophagus.

Dr. MAHU (Paris).—*Application of the Self-retaining Tongue-compressor in Laryngology.*

The author describes this instrument as most useful in acting as a spatula without holding it in position, and therefore allowing the surgeon the use of both hands.

It is therefore easier to perform delicate examinations and operations; it is useful in troublesome children, in arresting hæmorrhage by suturing the pillars of the fauces, in puncturing retro-pharyngeal abscesses, in adenoid operations, in intubation, etc.

Dr. LABARRIÈRE (Amiens).—*Tracheal Injection of Paratorine.*

Dr. CASTEX (Paris).—*Partial Laryngectomy by Lateral Opening.*

This operation was performed to remove growths in the posterior wall of the larynx. The incision is made on the lateral surface of the thyroid cartilage on the left side instead of following the anterior border of the sterno-mastoid, so as to avoid the carotid and other vessels. The superior cornu of the cartilage is resected, as it is in the centre of the field of operation. Incise vertically the lateral wall of the pharynx, and the posterior wall of the larynx is reached. A drain should be left in to avoid surgical emphysema and accumulation of saliva in the wound. The author performed the operation without recourse to tying any vessels.

Dr. LAURENS (Paris).—*Two Cases of Laryngeal Leukoplakia.*

The author considers that intra-laryngeal intervention by means of cutting forceps and application of salicylic acid or solvents of keratine should be tried in cases where there is laryngeal obstruction. In other cases general remedies are quite sufficient.

Dr. LAFITES-DUPONT (Bordeaux).—*New Operative Method in Thyrotomy.*

A chain saw is used to divide the cartilage instead of the usual scissors.

Dr. LANNOS (Lyons).—*Case of a Large Villous Tumour of the Larynx.*

The author showed a large villous tumour of the larynx removed by Dr. Durand by means of thyrotomy. The intra-laryngeal operation could not be performed on account of the size of the tumour.

The patient, who was aged sixty-one, and suffered from diffuse bronchitis, died next day.

Dr. GUISEZ.—*Notes on the Extraction of Three Artificial Dentures by Œsophagoscopy.*

The author, by means of œsophagoscopy and by the aid of specially-constructed valvular tubes worked by means of a screw, dilated the walls of the œsophagus and easily disengaged the foreign bodies. The walls of the metal tube at the same time serve to prevent damaging the walls of the œsophagus in extracting such irregular foreign bodies.

Drs. LANNOIS and CHAVANNE (Lyons).—*Clinical Notes on Ménière's Disease.*

In the discussion which ensued, the term "Ménière's disease" was criticised. Trétirop said that every disease of the internal ear was called Ménière's disease. Moure said the term should be applied only to cases of embolism in the internal ear; Lermoyez said the term was used very vaguely to hide our want of knowledge of diseases of the inner ear.

Dr. TRÉTRIOP (Antwerp).—*The Treatment of Vertigo and Tinnitus and Partial Deafness.*

The author describe several cases which, clinically, should be recognised as different from oto-sclerosis and labyrinthine affections. The bone-conduction was preserved; Rinne was negative. Changes were diagnosed in the tympanic cavity and the Eustachian tube. Hearing power was impaired. If the hearing is tested by the audiometer, and the condition of the Eustachian tube is taken into consideration, these cases improve under ordinary treatment.

Dr. LERMOYEZ (Paris).—*Statistics and Treatment of Acute Otitis Media.*

The method of treatment by antiseptic drops day by day is somewhat like the days when surgeons dressed a wound every few hours. This continual treatment helps the inflammatory process to spread.

The author considers that the best treatment is to use no antiseptics, but to first make a thorough opening in the membrane, then swab out carefully all the pus and serum, insert a plug of aseptic gauze and keep the ear covered from the external air. The author shows by statistics that there are few complications and

less mortality by this method, and that the average time for healing is diminished.

The author advises no syringing, no inflation and no antiseptic instillation.

Dr. GUISEZ (Paris).—*The Circular Electrolisis in Cicatricial Contractions of the Œsophagus and Larynx by Means of Œsophagoscopy.*

This treatment is similar to that employed in dilating urethral strictures, and was successful in eighteen out of twenty-four cases observed by the author.

Dr. GUISEZ (Paris).—*Spasms of the Œsophagus and their Treatment.*

Dr. BOURGEOIS.—*Otitic Thrombo-phlebitis of the Cavernous Sinus; Recovery.*

The signs were complete. The radical mastoid operation was performed, the lateral sinus explored and found not thrombosed. Oscillations of temperature continued, but the ocular signs diminished, and after the evacuation of a pleuro-pulmonary abscess recovery took place.

Dr. LUC (Paris).—*A New Method of Diagnosing and Treating Periostitis of the Temporal Bone due to Aural Disease when no Suppuration of the Mastoid.*

When the otorrhœa is not persistent and the œdema over the temporal bone with swelling in the meatus, the chief thing is merely to make an incision and drain.

Dr. MAHU (Paris).—*Case of Peri-sinusitis of Lateral Sinus, Latent Extra-dural Abscess in a Man Aged Sixty; Operation; Cure.*

The author calls attention to the absence of urgent symptoms, although in exploring the sinus a large portion of dura mater was exposed with signs of inflammation and granulation.

Dr. LAURENS (Paris).—*The Treatment of Septic Meningitis of Aural Origin.*

The author advises lumbar puncture repeated daily to drain the cerebro-spinal fluid, and he also suggests the use of electrargol, an absolutely pure silver preparation, injected into the spinal fluid.

Dr. CASTEX (Pau).—*Deaf-mutism through Hereditary Syphilis.*

The author points out that only 2½ per cent. of children so afflicted could be traced as having hereditary specific disease. He examined 719 cases and only found 18 with distinct signs of the disease.

Dr. LEROUX (Paris).—*Tonsil Punch with Hooks.*

This instrument fulfils the purpose of hooking, grasping, punching, and detaching portions of the tonsils, and is specially adapted for the hooded forms.

Dr. CORNET (Chalins-sur-Maine).—*Oto-sclerosis and Auto-intoxication.*

The author states that in the great majority of these cases there is some general disease present, as arterio-sclerosis or intestinal trouble. This is also proved by the disease being commonly caused by pregnancy.

Dr. PIAGET (Grenoble).—*General Anaesthesia by Ethyl Chloride.*

In every small operation in throat and ear work the author prefers ethyl-chloride and has found it very successful.

Dr. MATHIEU (Challes).—*Case of Syphilis and Tuberculosis.*

The author describes a case which had all the signs of tubercular disease both of larynx and lungs. Later on a gumma was diagnosed in the nose, and under anti-specific treatment all the unfavourable symptoms disappeared in the larynx, lung, and nose.

Dr. LANNOIS (Lyons).—*Regeneration of a Vocal Cord after Total Removal for a New Growth.*

The author showed the stereoscopic photograph of a larynx in which the right vocal cord had regenerated after an operation for the removal of a localised epithelioma.

Dr. BOUSQUET (d'Aix-les-Thermes).—*The use of Hot Sulphur Vapour under pressure for the Trachea, Nose, and Tympanum.*

Dr. BICHATON (Reims).—*Two Cases of Pemphigus of the Mucous Membrane, one being complicated with grave Ocular Disease.*

CASE I.—The first trouble was in the throat with more or less hoarseness; locally spots of pemphigus were seen on the mucous membranes. Later on these spots affected the whole body; the

eyes became severely affected and the patient died through debility.

CASE 2.—The disease lasted seven years. The first spots were on the right temple and were diagnosed as syphilis and remedies accordingly prescribed, but with no result. The disease continuing to advance, the eyes became affected with xerosis.

Dr. A. RAOULT (Nancy).—*Septico-pyæmia of Otitic Origin.*

Dr. A. RAOULT (Nancy).—*Mastoiditis with Aberrant Cells.*

Dr. ESCAT (Toulouse).—*Functional and Trophic Aural Disturbances in Total or Partial Herpes Zoster of the Trifacial Nerve.*

These cases prove (1) that herpes of the fifth nerve can give rise to inflammation of the middle ear, and even to partial necrosis of the inferior maxilla; (2) that hearing may be impaired owing to interference with accommodation through paralysis of the tensor tympani; (3) that vertigo and deafness may be explained by a tropho-neurotic peri-labyrinthitis without simultaneous neuritis of the auditory nerve; and (4) that late facial paralysis may be due to an otitic perineuritis of the facial.

Dr. ESCAT (Toulouse).—*Clinical Rhinometry.*

An instrument which both compares exactly with the force of the respiration through each nostril, and also measures with precision the nasal capacity of each inspiration and expiration. This instrument is specially indicated to find the respiratory power in military schools.

Dr. MOURE (Bordeaux) and Dr. BOUYER (Cauterets).—*Vaso-motor Affections in Throat, Ear, and Nose Diseases.*

The author states that these vaso-motor affections are divided into those without trophic lesions and those with trophic lesions. Under the first group come hyperæmic, hypersecretory, and spasmodic affections, and under the second group are placed those with hypertrophy of the turbinal, enlarged tonsils, etc.

Treatment.—The author states that (1) the nervous condition must be treated, (2) the blood-pressure lowered, and he (3) prescribes mineral waters, baths, exercise, etc.; (4) he advises to avoid dust, cold, alcohol, etc.

In the discussion attention was drawn to the fact that asthma was often an *expression* of tuberculosis, and that many sufferers from hay-fever were tuberculous.

Drs. GLOVER and SÉBILEAU (Paris).—*Hyoido-thyrotomy for a Confluent Papillomata of the Larynx in a Child, aged Thirteen.*

The child was operated upon and tracheotomy tube kept in for two months. On its removal the voice returned rapidly.

In the discussion which followed, it was shown that tracheotomy often cures papilloma by giving a rest to the larynx, although they are always liable to return.

THE GERMAN OTOLOGICAL SOCIETY.

Seventeenth Annual Meeting, Heidelberg, June 6 and 7, 1908.

President, PROF. VOHSEN, in the Chair.

Abstract of Proceedings by favour of PROF. KÜMMEL (Heidelberg); translated by DR. J. S. FRASER (Edinburgh).

O. KÖRNER (Rostock).—*The Conservative Treatment of Chronic Middle-ear Suppuration.*

It is only since the introduction of the radical mastoid operation that we have begun to speak of the conservative treatment of middle-ear suppuration, which includes all therapeutic measures that can be carried out through the natural passages—the external auditory meatus and Eustachian tube—even when these include surgical operations such as the removal of diseased ossicles. Nowadays every chronic middle-ear suppuration is not regarded as dangerous to life, because the radical operation—a sort of antopsy on the living—has taught us to recognise the difference between the dangerous and the harmless cases. For this reason we have given up the purely prophylactic indication for the radical operation, and only operate when the dangerous character of the suppuration is recognised. The signs which point to this have been stated in detail, and when these are not present the necessary treatment can be carried out through the natural passages.

Middle-ear suppuration may be confined to the hypo-, meso- or epitympanic cavities or may affect the mastoid antrum; the speaker mentioned the methods he employed in each case. Regular cleansing of the tympanic cavity by means of the tympanic cannula and syringe occupies the first place. It is of no great value to add an antiseptic to the water used for this purpose, but

hydrogen peroxide is of great use on account of its mechanical cleansing properties. Boric acid powder must be applied with care when the perforation is a small one—that is to say, only under medical supervision. Nitrate of silver and alcohol give good results when the swelling of the mucous membrane is marked.

The removal of diseased or useless (dislocated) ossicles makes the complicated middle-ear space more simple, and therefore more accessible, to all therapeutic measures. It is of great importance that nasal or pharyngeal suppuration should be cured, because they often give rise to fresh attacks of ear suppuration. It is also very important that, in addition to local treatment, the strength of the patient should be maintained especially in the case of anæmic children or those with enlarged glands. Salt baths or a stay at the seaside, with or without sea baths, often work wonders.

Prof. SCHEIBE (Munich).—*What are we to Expect from the Conservative Treatment of Chronic Middle-ear Suppuration?*

After defining the expression “chronic middle-ear suppuration,” Scheibe stated that he had come to the conclusion that Bezold’s boric acid treatment and the methodical use of the antrum cannula *do* prevent the occurrence of mastoid and cerebral complications in cases of chronic suppurative otitis media: This conclusion was based on minute statistical inquiry, to which he attributed great importance, though he knew that Professor Körner did not agree with him. The extensive personal experience of Bezold and Siebenmann proved that he (Scheibe) was right. The generally accepted position of Wilde regarding the uncertainty of middle-ear suppuration has lost its validity. If, in spite of continued efficient direct injections and insufflations, the fœtor of the discharge continues (that is, in only $1\frac{1}{2}$ per cent. of 750 chronic middle-ear suppurations) the radical mastoid operation is advisable; the ossicles should not, however, be removed. Ossiculectomy through the meatus was not employed in a single case, because it is not free from danger and usually is unnecessary. By means of the statistics collected by Scheibe’s pupil (v. Ruppert), we have for the first time a criterion by which other conservative methods of treatment can be judged.

In the discussion THIES (Leipzig) recommended the removal of the lateral attic wall in cases of chronic suppuration with affection of the attic and antrum which have resisted conservative treatment. The removal of the ossicles and tympanic membrane depended on the extension and position of the foci of disease. Cases with

external symptoms of disease of the mastoid process are excluded. The operation is performed under local anaesthesia according to Neumann's method. When the antrum shows signs of marked disease the adjacent part of the posterior bony meatal wall must be removed.

Dr. HEGENER (Heidelberg).—*Suggestions with regard to the Estimation of the Upper Tone Limit.*

The idea that the upper tone limit is about 50,000 V.D. (Schwendt, Edelmann) is incorrect; it really lies about 20,000 V.D. (Myers, F. A. Schulze, Hegener). The error arose from the fact that the Galton whistle, when blown by an indiarubber ball, produces a series of tones, the lowest of which was from one to two octaves lower than the fundamental tone of the whistle as measured by Kundt's tubes. These tones (cutting tones) in the determination of the narrowing of the upper tone limit lead to mistakes. To maintain a continuous pressure by blowing meets with decided practical difficulties; you are at the same time disturbed by the noise of the bellows, and the possibility of being misled by friction tones. For these reasons the Galton whistle is to be thrown aside. For a critical examination the newly-constructed monochord of Schulze is specially suitable; this instrument produces tones depending on the vibrations of stretched cords. Along with it tuning-forks or Melde's tone-plates may be used.

Dr. HEGENER (Heidelberg).—*Method for the Estimation of the Number of Vibrations of Soft High Tones, with Demonstration.*

The object of this method is to give a decidedly higher degree of sensibility than the tubes of Kundt, which have hitherto been usually employed. The idea is to avoid loss of power and provide a good indicator. Seebeck's tubes are used, and the place of the ear is taken by a very sensitive high-pressure flame. On account of the resonance thus produced, the delicacy even of Lord Rayleigh's method is markedly improved on, and its faults, due to the size of the flame and the heating of the air, are avoided; the accuracy is very great, and the method is purely objective.

Dr. BÉKÁNY (Vienna).—*Noise Apparatus to determine One-sided Deafness.*

The lecturer demonstrated the *patent* apparatus which had been

constructed by Reiner and Co. according to his suggestions; clock-work causes a hammer to strike a membrane, and the noise thus produced is conducted direct to the ear by means of an ear-speculum. It is not yet possible to ascertain with certainty one-sided deafness in all cases in spite of the excellent investigations of Bezold, even with a tedious and protracted examination. The lecturer has thought of the idea of excluding the sound ear by producing in it such a noise as to make it deaf to every other source of sound, so that it is now possible to examine the hearing capacity of the other ear alone. There is a theoretical objection to this method, in that the noise produced in the healthy ear may affect the diseased ear and so prevent the detection of slight hearing ability in the diseased ear; according to the examinations carried out by Bárány this is, however, not the case, and even quite minute remaining islands of hearing can be recognised. It is also possible in this way to distinguish total one-sided deafness from "vowel" hearing. The examiner must speak with a loud voice on account of the deafness of the ear he is investigating. A person with normal ears can hear conversation several yards away, and whispering at one yard at least; if, on the other hand, the ear to be investigated is totally deaf, the very lowest talking and noises are not heard at all. A double apparatus of this kind applied to a person with normal hearing makes him for the time totally deaf. This new apparatus is an improvement on one previously invented by Bárány, in that it is very handy and the noise produced is always of the same strength: the recognition of one-sided deafness can be attained in a few seconds with absolute certainty.

DRS. K. L. SCHAEFER and H. SESSOUS.—*On the Importance of the Middle-ear Apparatus for the Hearing, especially of the Lowest Notes.*

These investigators have examined seventeen patients on whom the radical mastoid operation has been performed on both sides, *i.e.* thirty-four ears; the lowest hearing limit was tested with the Edelman forks; with a few exceptions this lower limit lay in the large or contra-octave. As it has already been proved that middle, high, and the highest notes are heard by patients who have had the radical operation, we may conclude that on the whole the hearing of tones is relatively little affected by the want of the middle-ear apparatus as far as qualitative relations are concerned; it is quite a different matter with respect to quantity, as is proved by general experience, and specially by the former experiments of F. Wagner.

When the tympanic membrane and chain of ossicles are wanting, the duration of hearing for single tones is the more shortened the lower the tone.

Dr. WANNER (Munich).—*Functional Examination in Cases of Congenital Syphilis.*

Bezold has proved in his work "Die Taubstummheit Auf Grund Ohrenärztlicher Beobachtung" that, among 233 cases of acquired deaf-mutism, 13 (5.6 per cent.) were due to congenital syphilis. According to his examinations difficulty of hearing shows itself either between the seventh and eighth or between the eleventh and twelfth years. All the patients, with one exception, showed signs of previous eye disease. The third member of the Hutchinson triad—the Hutchinson's teeth—were present in many cases. In the course of years Wanner has examined fifteen further cases which were recognised according to Bezold's symptom-complex as arising from congenital syphilis. The patients were tested with the Bezold-Edelmann tone series. Five of the patients were tested on several occasions both before and after anti-syphilitic treatment; in three cases there was some improvement, while in the two others, after a temporary improvement, marked deterioration took place. The results were demonstrated by graphic representations, and gave a clear picture of the affection of the inner ear in cases of congenital syphilis.

The majority of the patients were females—two boys to five girls. This preponderance of the female sex is the more remarkable when one considers that among ear patients in general four females suffer as compared with six males, whereas in this form of ear disease fifteen females were affected and only six males. The occurrence of the deafness takes place suddenly as a rule—within the course of a week or a month; while the ages mentioned above are the most common for the occurrence of the disease, it cannot be excluded up to the age of twenty. Syphilitic disease of the eye occurs in almost all cases three or four years before the disease of the ear, and the results, usually corneal opacities, are easily recognised.

Sometimes along with the occurrence of the ear disease we meet with relapses of the disease in the eye. Hutchinson's teeth are present in about 50 per cent. of the cases. Tinnitus and giddiness are proportionately seldom noticed at the beginning of the ear disease in addition to deafness. The history of the patient, if it can be obtained, lends weighty support to the diagnosis, *e.g.*

history of the disease in the parents, premature or still births, stigmata of syphilis at or soon after birth.

Otosopic examination frequently shows the picture of closure of the Eustachian tube and leads to a wrong diagnosis if accurate tests of the hearing distance for whispered speech be omitted. In cases of uncomplicated tubal closure the number 9 ("neun") is very frequently badly heard, whereas in these cases (congenital lues) the numerals 4, 6 and 7 ("vier," "sechs," "sieben") are more difficult to pick up. After the use of Politzer's method the hearing distance in the one case returns to normal, but in the other is very little improved.

The functional examination gives, as a rule, the picture of disease of the inner ear—normal or somewhat narrowed lower tone limit, marked shortening or loss of bone conduction, great defect of the upper tone limit, positive Rinne. In the qualitative test we also meet with gaps in the scale not infrequently.

The prognosis is doubtful and the treatment not very encouraging; an anti-syphilitic course of treatment should be begun as soon as possible—potassium iodide and mercury by inunction by preference. Most important of all is the preservation of speech, which would otherwise be lost in a remarkably short space of time, so that by the age of fifteen or eighteen the patient can no longer be understood. Since the children at the time of the illness can speak perfectly well they need only retain this power, and for this reason they should as soon as possible enter the hearing class of a deaf-and-dumb institution.

Prof. DENKER (Erlangen).—*Demonstration of Three New Ear Models.*

(1) In the first the whole organ of hearing was demonstrated by means of a vertical section from without inwards, showing the complicated shape of the external meatal passage; the section next turns forwards along the long axis of the Eustachian tube, leaving the drum membrane intact. The whole middle-ear tract with the ossicles is thus easily seen. The section also shows the cochlea (opened) as it lies in relation to the median wall of the tympanic cavity, the vestibule and semi-circular canals, and the internal auditory meatus with the auditory and facial nerves.

(2) The second model is a corrosion preparation, seven times enlarged, and shows the form of the cavities of the whole organ of hearing in a most excellent way.

(3) The third demonstrated the tympanic cavity twenty times

enlarged; this model can be taken to pieces so that one can study the formation of the outer and inner wall.

Prof. SCHÖNEMANN (Bern).—*Demonstration of Five Flat Models of the Human Ear, fifteen times enlarged.*

Prof. POLITZER (Vienna).—*The Anatomical Condition of the Foot-plate of the Stapes in Oto-sclerosis.*

Politzer demonstrated a number of histological preparations from cases of oto-sclerosis which had been observed during life; the extension of the bone disease of the labyrinth capsule to the stapes was shown in its various stages. Several of the sections through the labyrinthine capsule and stapes-plate can lead to the false conclusion that the oto-sclerotic changes develop primarily in the foot-plate itself. Serial sections of these preparations show, however, the immediate connection of the bony change with that in the labyrinth capsule. The preparations show, further, that oto-sclerosis consists not in a change of the normal bony tissue in the labyrinth capsule, but in a real new formation which displaces the normal bony tissue and often proliferates over the surface of the labyrinth capsule. This bony proliferation is specially marked where it spreads to the stapes-plate, which is often replaced by a bony mass as the preparations show.

Politzer demonstrates other specimens which conclusively proved that in cases of typical clinical oto-sclerosis we have to do with a primary disease of the labyrinth capsule; this is contrary to the statements of Habermann, who regards the bone changes as proceeding from the periosteal layer of the mucous membrane.

Politzer gives the following reasons for his opinion:

(1) In no case, in which the site of the disease was the wall of the promontory, did the spread of the process take place from the periosteal layer towards the deeper parts, but, on the contrary, the bone disease, where it does not occur as a circumscribed island in the labyrinth capsule, extends to the whole thickness of the promontory wall.

(2) Because Politzer, Jörgen, Möller, and Lindt have found circumscribed, sharply bounded, newly-formed centres of ossification in the labyrinth capsule, between which and the periosteum a normal bony layer existed. Manasse also in one case found on both sides an isolated, newly-formed bony deposit in the internal meatus.

(3) Finally, Politzer on histological examination of the typical form of the disease never found the slightest changes in the mucous membrane of the middle ear or in its periosteal layers.

Dr. BRÜHL.—*Microscopical Demonstration on Oto-sclerosis.*

The specimens were from an extremely deaf female, aged sixty-three. There was a fixation of the stapes due to a spongification centre in the promontory wall, but the middle ear was otherwise normal; a second centre existed in the wall of the internal meatus.

Dr. YOSHII (Tokio) and Prof. SIEBENMANN (Basel).—*Demonstration of Experimental Injuries of the Organ of Hearing.*

The microscopical preparations, which were exhibited by means of the projection apparatus, were obtained from guinea-pigs which had been exposed to—(1) Various high notes (whistle); (2) rattle drum sounds; (3) detonation. The changes due to whistle-notes affected Corti's organ as well as the ganglia and nerves in connection with it; they occur lower in the cochlea the higher the tone is. The syren with a range of tone from f. 3 to f. 4 injures the whole cochlea after even a short trial. The most marked changes were produced by shooting—a single shot with a child's pistol and caps fired close to the ear can shatter Corti's organ, cause varicose deformities of the nerve, and shrinkage of the ganglion cells. The vestibular apparatus is also affected in this last experiment.

Prof. SIEBENMANN (Basel) and Dr. YOSHII (Tokio).—*Specimens of Circumscribed Labyrinthitis.*

These were from the cochlea of a guinea-pig. The basal and apical turns were affected by inflammation due to middle-ear suppuration, but the two turns in the middle of the cochlea were normal.

Dr. FERDINAND ALT (Vienna).—*Demonstration of Microscopic Preparations of Labyrinth Suppuration and its Results after Epidemic Cerebro-spinal Meningitis.*

The first specimen was from a boy, aged sixteen, whose illness had only lasted nine days: the preparation showed the condition of interstitial purulent neuritis of the cochlear, vestibular and facial nerves, as well as a recent purulent inflammation in the cochlea, vestibule and semi-circular canals and inner wall of the tympanic cavity.

The second was from a young man, aged eighteen, who died after an illness lasting sixty-seven days: the specimen showed the result of a purulent inflammation of the labyrinth with almost total destruction of the membranous labyrinth and new formation of connective tissue rich in blood-vessels: in some parts the specimen showed early ossification of this tissue in the cochlea, vestibule and semi-circular canals, while in others the ossifying process had become complete.

The third specimen was from a workman, aged twenty-one, who died after an illness lasting sixty-one days: the purulent infiltration had not left such characteristic traces as in the former case, but there was complete destruction and fibrous degeneration of the nerve end-apparatus in the whole labyrinth.

Dr. MARX (Heidelberg).—*The Injury Inflicted on the Labyrinth by the Influence of Rays.*

After a single application of radium for a period of one hour to the ear-labyrinth of pigeons, symptoms of labyrinthine affection appear after a latent period of six months. The microscopic investigation showed that these changes were due to a degeneration of the sensory epithelium of the macula and crista acoustica. No other changes could be proved. Marx suggested that therapeutic use might be made of this result in cases of vestibular disturbance.

In guinea-pigs application of the radium rays resulted in degeneration of Corti's organ; there was also a proliferation of connective tissue and bone at the apex of the cochlea, but this is probably to be attributed to mechanical injury. Experiments with X rays, which have not yet been concluded, have hitherto given no definite results.

Dr. E. RETTIG (Vienna).—*Dilatation of the Ductus Cochlearis.*

He demonstrated preparations to illustrate this subject, and stated that in these cases there was a slowly-spreading inflammation ("induced labyrinthitis") through the labyrinth wall which produced typical changes in the membranous labyrinth. The dilatation affects the entire ductus cochlearis in apparently all cases, but in microscopic preparations one sees only the dilatation of the first half of the basal turn, because Reissner's membrane stays in its position of dilatation in this turn alone through the exudation sinking down from the inner side of the labyrinth wall, and later on becoming organised. In contrast to this "induced

labyrinthitis." Ruttin found that, in cases of ordinary suppurative labyrinthitis, where the route of entrance of the suppuration could be seen, the membranous cochlea was always destroyed.

Dr. F. R. NAGER (Basel).—*The Formation of Labyrinth Sequestra in Cases of Middle-ear Carcinoma.*

This demonstration was illustrated by coloured (Lumière) lantern plates.

The specimens were from a patient, aged eighteen, whose family history was bad. In youth he had suffered from middle-ear suppuration with cholesteatoma, and on this a squamous epithelioma had formed. In spite of several operations death occurred ten months later. On histological examination it was found that there were several points of entrance of the disease into the vestibule and semi-circular canals. In the cochlea there was an extensive chronic fibrous and ossifying labyrinthitis; this is not specific for carcinoma, but from these appearances one would come to the conclusion that a labyrinth inflammation had been overcome. It is not easy to say with certainty whether these appearances were due to the ear trouble in youth or were an indirect effect of the carcinoma. Though the sequestrum had not as yet become quite dead—the blood contents and straining reaction of the cell elements were relatively good—this observation proves that carcinoma, like tuberculous or cholesteatoma, can give rise to partial or complete sequestrum formation of the labyrinth. Up to the present time no identical observation has been recorded.

Dr. HUGO FREY (Vienna).—*Microscopic Preparations of Malformations of the Organ of Hearing.*

These were from cases of anencephaly.

Prof. DENKER (Erlangen).—*Model showing the Mechanism of the Ossicles (made by Edlmann).*

Dr. VOSS (Frankfurt a. M.).—*Clinical Observations on Non-purulent Inflammations of the Labyrinth in the Course of Acute and Chronic Middle-ear Suppurations.*

This speaker gave, first of all, an historical review of the question of the division of labyrinth inflammation due to middle-ear suppuration, into those of a purulent and non-purulent nature; he then reported a series of personal observations bearing on this point, *i.e.* serous labyrinthitis in connection with acute and chronic middle-ear suppuration.

Voss comes to the following conclusions :

(1) Labyrinth inflammations occurring in the course of genuine acute middle-ear suppuration, which is not of a scarlatinal or tuberculous nature, are usually of a serous and not of a purulent nature.

(2) They occur as circumscribed or diffuse inflammations, *i.e.* they affect part of the labyrinth or the whole of it.

(3) The diagnosis as to which of these two kinds is present in a particular case makes it necessary that the functional examination should be carried out by all the latest modern methods for testing the acoustic and static labyrinth.

(4) The differential diagnosis between a diffuse serous and a diffuse purulent labyrinthitis in cases of acute middle inflammation can be made, because the diffuse serous labyrinthitis comes on almost at the same time as the middle-ear inflammation, and runs a rapid course and has a favourable result.

(5) The differential diagnosis between a circumscribed serous (labyrinthitis) and circumscribed purulent labyrinthitis is made in the same way ; in the serous form the function of the organ is restored to normal, and the fistulae found in other cases are absent.

(6) As far as function is concerned, the circumscribed serous form must be regarded as favourable, and the diffuse form as unfavourable.

(7) In regard to life, both forms are equally favourable.

(8) Healing of these labyrinth inflammations proceeds paralled with the healing of the middle-ear suppuration.

(9) It must therefore be our object to cure the middle-ear condition by operating at once on a case of mastoiditis, so as to prevent permanent changes in the delicate membranous and nervous structures of the inner ear.

(10) Nothing can be expected from a mastoid operation only performed for the purpose of relieving the functional disturbances due to serous labyrinthitis.

(11) In connection with the radical operation we meet with symptoms of labyrinth irritation without any labyrinthine fistula or operative injury (such as stapes displacement or injury of the semi-circular canal) having occurred.

(12) These symptoms are due to serous labyrinthitis, which is probably produced by infection by way of the membranes in the round and oval windows.

(13) The manipulations on the labyrinth wall are probably the cause of this condition.

(14) Apparently there is the question in these cases of diffuse and circumscribed inflammatory processes.

(15) The differential diagnosis is made by the functional examination of the acoustic and static labyrinths.

(16) These conditions are diagnosed from coarser traumatic lesions, because they occur only after from fourteen to twenty-four hours after the operation—not at once. They also reach their climax only a few days after the operation, and, as a rule, end more quickly than the symptoms after injury of the labyrinth.

(17) They can be distinguished from purulent infections of the labyrinth by the mode of onset which has been described, by the absence of fistula in the labyrinth wall, by the absence of fever, and because they end with re-establishment of function.

(18) As regards the function of the organ and life of the patient the prognosis is favourable.

(19) The treatment must be purely expectant.

E. BLOCH (Freiburg i. B.).—*The Aetiology of Stapes Ankylosis.*

After a cursory reference to the principal causes of “*hyperostosis of the labyrinth capsule*” that have been hitherto advanced, the lecturer reported a case of inheritance of this condition. In two generations of a large family he had found six cases of this condition as proved by functional examination. The first of these cases died soon after the last examination, and the clinical diagnosis was verified by anatomical and histological examination.

MAXASSE (Strassburg i. E.).—*Exostoses of the Internal Auditory Meatus (with demonstration).*

The specimens shown were from a female, aged eighty-three. On the left side the upper boundary of the internal auditory meatus presented two thick protuberances, and the new formation extended as far as the sinus; on the right side the swelling was larger, but did not extend so far outwards. Microscopically it consisted in parts of ivory-like bony tissue, in other parts of spongy bone with marrow spaces; the tympanic cavity, external meatus and labyrinth were not affected.

Dr. E. RUTIN (Vienna).—*The Surgery of the Temporal Bone.*

The case reported was one of subacute purulent otitis with fistula in the lower bony meatal wall and labyrinth, and deep extra-dural abscess. Rutin completely extirpated the pyramid in order to reach absolutely healthy tissue. He showed that the danger of hæmorrhage, injury of the brain and meningitis was

absolutely *nil* in this operation, and that ear surgery must not stop short of the carotid canal. Ruttin also mentioned that Bárány had used a similar method for the removal of tumours of the auditory nerve on the cadaver.

Dr. FERDINAND ALT (Vienna).—*The Operative Treatment of Otogenic Facial Paralysis.*

The paralysed facial nerve exhibits a remarkable capacity for regeneration; we see cases of facial paralysis, which have occurred as the result of middle-ear suppuration or the radical operation, clearing up after more than a year, but there always remains a small proportion of cases which, in spite of diligent conservative treatment, show no tendency to recovery. In such cases anastomosis between the facial and spinal accessory or hypoglossal has been recommended.

One and a half years ago Alt performed the radical operation on a child, aged seven and a half; the whole bony labyrinth could be removed as a sequestrum. For the treatment of the facial paralysis a facio-hypoglossal anastomosis was carried out with a satisfactory result: active movements again occurred in the forehead, eyelids and mouth, and electric excitability also returned. This nerve-grafting brings up the question as to whether a simpler method of dealing with such cases as the above cannot be discovered so as to obviate the injury of another cranial nerve. When a patient has middle-ear suppuration along with a facial paralysis that has lasted for weeks or months, Alt carries out the radical operation in the following way: He pays great attention to hæmostasis so that the field is not obscured by bleeding. After cleaning out the attic and antrum he renders the tissues anæmic by the free use of adrenalin, and lays bare the Fallopian canal in order to discover any abrasion of the bony wall; he next opens the facial canal centrally and peripherally from the region of the casing of the nerve in the tympanum, cleans the canal and the nerve from all adherent granulations or compressing cholesteatoma, and finally replaces the nerve in the semi-canal thus produced. In cases of post-operative facial paralysis he performs the same operation if, at the end of six months, there is no return of active movements or electric irritability in spite of the usual measures. Alt explained his method of operation, which was followed by prompt diminution of the appearances of paralysis. A specially favourable result was obtained in a case of facial paralysis which had existed for four years; the first operation had been performed

elsewhere. Alt freely exposed the facial nerve in the horizontal and vertical part of the Fallopian canal and found that it was not divided, but that, in the horizontal part, it was not surrounded by bone, but embedded in a tense mass of scar-tissue. During the operation Alt was unwilling to admit that the paralysis had been due to this embedding of the nerve alone, but the further course of the case proved that this was the case as the paralysis passed off in a remarkably short period.

Dr. LUXER (Bern).—*A Case of Tuberculosis of the Nose in an Uncommon Position.*

The patient was a young man who had had syphilis four years previously, but had been treated and declared to be cured. In the posterior third of the right inferior meatus there was a soft, flat swelling, which looked like granulation tissue on the wall of the antrum and partly on the inferior turbinal; there was a defect in the wall of the antrum at this point, but no inflammation of the surrounding tissue, no sequestrum formation, and no fœtor. The patient could not stand potassium iodide, nor did this drug lead to any improvement. A cure was obtained by operation. Microscopical examination showed granulation tissue, round foci of epithelioid cells free from blood-vessels, and typical giant-cells, but no syphilitic changes in the blood-vessels. It must also be noted that the patient had a slight affection of the right apex, and reacted positively to the cutaneous tuberculin test.

Dr. MARX (Heidelberg).—*Demonstration of Osteomata of the Accessory Sinuses.*

(1) Osteoma of the sphenoidal sinus: The patient was a male, aged thirty-five, who for four years had suffered from increasing exophthalmos. Three days before the operation there was the sudden appearance of an orbital phlegmon with high fever. At the operation a long tumour nearly 7 cm. in length was removed from the orbital cavity. The eye was carefully guarded during the operation. The case progressed favourably, though there was some temporary diminution of the field of vision, due to traction during the operation. The power of vision was somewhat better after the operation ($\frac{1}{5}$). Movements of the eye quite good; no spontaneous diplopia. Cosmetic result also satisfactory.

(2) Osteoma of frontal sinus: Female, aged twenty-eight; proptosis for ten years. Marked emphysema of the conjunctiva

occurred suddenly during the act of blowing the nose some days before the operation. At the operation a 3.5 cm. tuberculated tumour was removed and found to be in connection with the floor of the frontal sinus. Further course and cosmetic result good; eye not injured; no diplopia.

(3) Ethmoidal osteoma: Male, aged eighteen; 3 cm. sclerotic tumour removed from the region of the anterior ethmoidal cells; course and results good.

Dr. UFFENORDE (Göttingen).—*Two Cases of Sub-dural Abscess (with demonstration).*

The first case was one of sub-dural abscess of the middle cranial fossa complicated by extra-dural and left temporo-sphenoidal abscess; the case recovered. The brain abscess lay some distance from the suppurating middle ear. As exciting factors there are not found the absolutely anaërobic saprophytes which are recognised by others by means of the factor and the marked purulently infiltrated marginal zone of encephalitis with the resulting copious detritus. Uffenorde demonstrated and recommended the use of wide glass drainage tubes in these cases; the tubes are bent at a right angle and contain narrow selvedge iodoform or vioform gauze. The aphasic disturbances continued for a long time, but otherwise the case exhibited no special symptoms.

(2) In the second case only the smaller focus lying above the tegmen tympani et atri could be opened up by means of a cruciform incision. Typical symptoms were not observed in either case, but the pathological and anatomical findings were the same in both, viz. a marked yellow staining of the smooth, shining, and imperforated dura mater. The arachnoid, which was covered with granulations, was preserved. In the second case a larger focus was found *post-mortem* above the occipital lobe, and histological preparations of this were shown along with a macroscopic preparation of the brain. The cause of the infection was the *Streptococcus mucosus*. Shortly before death a leptomeningitis had occurred.

Dr. FR. MÜLLER (Heilbronn).—*A Wound Clip for Ear Operations.*

Prof. HARTMANN (Berlin).—*Closure of Retro-auricular Openings by backward Displacement of the Auricle.*

When an operation has led to a retro-auricular opening the auricle itself is displaced forwards and outwards and the opening is

on the uncovered surface of the mastoid process; to close the opening the auricle must be once again replaced.

This is done as follows: The scar surface is excised in such a way as to obtain an oval wound surface with the ends pointing upwards and downwards; in the middle of this surface lies the retro-auricular opening. The two ends of the oval surface must reach beyond the upper and lower limit of the attachment of the auricle, and the anterior and posterior wound boundaries must be equally far away from the anterior and posterior boundary of the retro-auricular opening. The edges of the wound are united by stitches, and, if necessary, part of the posterior meatal wall must be removed. By this means a free entrance to the tympanic cavity is obtained and any disfigurement is avoided.

Dr. Voss (Frankfurt a. M.).—*Salpingoscope with Arrangement for Catheterisation and Passage of Bougie.*

Dr. Voss has had an arrangement fitted to Valentine's salpingoscope in order that a catheter or bougie may be passed with the aid of vision; the principle of the cystoscope has been followed, and with the aid of the new instrument one can observe the introduction of the bougie or catheter into the pharyngeal orifice of the tube and give them the desired direction.

Prof. KRETSCHMANN (Magdeburg).—*Operative Treatment of Deformities of the Nasal Septum.*

This speaker demonstrated on a preparation a new method of septum resection, which he had used several times. The upper lip is turned up and an incision is made down to the bone at the junction of the gum and mucous membrane of the lip, from the level of one canine tooth to the other. The upper flap is elevated from the bone till the lower boundary of the pyriform aperture appears. One next goes round this boundary with the elevator and raises the mucous membrane on both sides as well as the mucous membrane of the septum. The loosened mucous membrane is then retracted with blunt instruments and the septum lies denuded, so that one can carry out the necessary operation. At the end of the operation the soft parts are replaced; stitches are not absolutely necessary. A slight rise of temperature and some swelling of the face usually follow within the next few days. This operation gives good access. It often happens that the anterior nasal spine and incisor crest are enlarged by exostosis and must be corrected; it is sometimes necessary also to chisel the nasal bone.

Dr. UFFENORDE (Göttingen).—*Pathological and Bacteriological Researches in a Case of extensive parietal Lateral Sinus Thrombosis (with demonstration).*

Dr. Uffenorde reports a case of parietal thrombosis which was due to erosion of the sigmoid sulcus; the thrombosis spread in the wall of the lateral sinus peripherally and centrally so that it extended from the superior longitudinal sinus to the internal jugular vein. At the operation the parietal thrombus was so firm that it was mistaken for the median wall of the lateral sinus as thickened by phlebitis, and the fact was overlooked that the median half of the sinus contained blood. A firm tamponade between the lateral wall of the sinus and the bone did not diminish the flow of blood. The patient suffered from bronchitis (hemorrhagic), and this made it difficult to explain the physical signs in the lungs, so that it was only when rigors and blood-stained sputum were observed that the correct diagnosis of metastatic hemorrhagic infarction could be made, and the sinus further operated on; previously the lung condition had been looked on as one of broncho-pneumonia complicating the already existing bronchitis. It took several operations to perform the complete bulb operation according to Grunert, on account of interruptions due to heart weakness and other circumstances. The increasing metastases were, however, not stopped even by this operation, so it was evident that the transverse sinus of the other side was conveying the infecting emboli. Infection of the peripheral part of the transverse sinus could not be thought of, on account of the parietal thrombus condition found by the Meier-Whiting method as well as on account of the normal condition of the outer sinus wall—a sign which again proved in this case to be very treacherous. A very large posterior emissary condylar vein was an anatomical abnormality in this case, and interrupted the bulb operation by causing profuse hemorrhage. At first this vein was looked upon as the carrier of emboli which had rendered nugatory the ligature of the jugular vein. The infective agent was found to be a Gram positive mobile bacillus, but closer identification was not possible. Their position corresponds to the peri-vascular position observed by F. Fränkel in the case of *B. pyocyaneus*. The lecturer made a further valuable contribution to the question of parietal thrombosis by giving details of a fatal case which had been minutely investigated from a pathological, anatomical and bacteriological point of view. The case was one of streptococcus infection in which there was parietal thrombosis

with septicæmia and metastases in the joints and soft parts; there was no mastoid tenderness or swelling.

Uffenorde thinks we must accept four different modes of onset of the general infection and gave examples:

(1) Obturating thrombosis—specifically but not exclusively in cases of virulent infections.

(2) Necrosis of the sinus wall and entrance of bacteria from the neighbouring suppurative foci into the blood-current.

(3) Parietal thrombosis when the organism is less virulent, or, even when the organism is virulent, if a protective layer has previously formed on the sinus wall. In these cases complete organisation eventually takes place with softening or re-canalisation of the parietal or obturating thrombus.

(4) Direct entrance of bacteria and toxin into the blood from the suppurating tympanic and adjacent cavities without a thrombo-phlebitic process in the sinus. The bacteria get secondarily into the thrombus. Histological demonstrations were given of parietal thrombosis of the sigmoid sinus and internal jugular, of the laminated thrombus of the peripheral transverse part with special staining for bacteria and fibrin.

Dr. ERNST URBANTSCHITSCH (Vienna).—*Favourable Results of Galvanic Treatment in Cases of Difficulty in Hearing, with Demonstration of a Galvanic Apparatus for Self-Treatment.*

The speaker described the favourable results of galvanism in dulness of hearing and subjective noises, and demonstrated them by means of tracings. He showed also a small galvanic apparatus for the patient's own use.

Prof. KIRCHNER (Würzburg).—*Demonstration of a Stand for Operative Practice on the Ear.*

Dr. HERSCHEL (Halle a. S.).—*Demonstration of the Decalcification Process in the Petrous Temporal Bone by Means of X Rays.*

The X rays are used to show how the decalcification process is progressing: unless these rays are used one has no absolutely certain criterion of the total decalcification: the rays show distinctly even the most minute traces of embedded lime salt, and show with certainty the moment when the bone is totally decalcified and ready for further histological processes.

Dr. HEGENER (Heidelberg).—*Demonstration of Thin Celloidin Sections through the Temporal Bone.*

In order to get thin celloidin sections ($10\ \mu$) from this hard bone one must pay attention to—(a) the embedding—protracted infiltration with very thin celloidin with use of a vacuum; (b) the block form; (c) avoidance of any want of firmness in the object and knife-cuts (new microtome of Jung); (d) the shape of the knife; (e) formation of the blade; (f) temper of the steel; (g) the alkaline reaction of the alcohol used for moistening the specimen, etc.

The suggestions are useful in neurological research and photomicrography.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting held at Montreal, May 11, 12, and 13, 1908.

(By courtesy of the *Medical Record*.)

Dr. HERBERT S. BIRKETT, of Montreal, President.

MONDAY, MAY 11—FIRST DAY.

President's Address.

Dr. BIRKETT delivered this address, taking as his subject "The History of Medicine in the Province of Quebec."

Removal of Foreign Body from the Trachea.

Dr. J. H. BRYAN reported a case of a grain of corn removed from the trachea of a six-year-old child. Several days before admission to the hospital he had inhaled the grain with the usual suffocative symptoms following, but these all quieted down and it was supposed that the body had escaped the air-passages. Returning attacks of dyspnoea seemed to disprove this assumption, but after admission to the hospital a careful examination and a radiograph failed to reveal anything definite. Later respiratory signs were absent over the right lung, but in a few hours air seemed to be entering freely on this side. Several ineffectual

attempts were made to introduce a tracheal tube through the larynx, but the swollen condition of the mucosa prevented this. Just at this moment the child became cyanotic and stopped breathing. The trachea was immediately opened and the grain of corn was seen to pass the opening on its way to the lower trachea. It made several excursions to and fro before the operator was able to grasp it. The patient rallied well from the operation and the tube was removed on the fourth day. Some laryngeal stridor remained for a day or two longer. The grain of corn was a large one and had increased in size from inhibition of moisture. Dr. Bryan said that the case showed that it was not always advisable to persist in passing a tracheal tube through a swollen larynx after several ineffectual attempts had been made. Irreparable injury might be done to the soft parts.

Personal Experience with the Bronchoscope, Oesophagoscope, and Gastroscope.

Dr. THOMAS H. HALSTED, of Syracuse, N.Y., read this paper. He had performed eighteen operations or examinations on fourteen patients, fourteen times under general anaesthesia, and one without any anaesthetic. Age varied from a newborn babe of two hours to a woman of seventy years. In four instances the operations were for the removal of foreign bodies: viz. penny in the oesophagus of a five-year-old boy, bone in the bronchus of a woman, fish-fin in the trachea of an eight-months infant, spicule of glass in the larynx of an eight-months-old infant, all being removed but the last. Of the remaining cases fourteen operations and examinations were for laryngeal papilloma, laryngeal stricture, papilloma of the lower pharynx, spasmodic stricture, suspected foreign body in the oesophagus, three times on one patient for stricture and ulceration in the bronchus, once for relief of asphyxia in a newborn infant caused by pressure of enlarged thymus and thyroid glands, and four times for examination of the stomach for gastric ulcer or other lesions. The author referred to the pioneer work of Jackson, through whose devices the stomach had been added to the organs capable of being examined directly by the eye.

Dr. EMIL MEYER, of New York, submitted specimens of foreign bodies he had removed during the last month by the bronchoscopic method. One was a grain of corn and the other the reed from a tin whistle. He laid stress on the point that vegetable bodies should be removed immediately whether symptoms were threatening or not. Delay caused such bodies to swell and might produce a

local œdema. He used cocaine in addition to a general anæsthetic. Dr. Halsted's case was of special interest because it was probably the youngest on record. It was necessary in such work to have well-trained assistants.

Dr. H. L. SWAIN, of New Haven, reported two cases, one that of two false teeth from a portion of a dental plate swallowed by an epileptic. They had lodged in the upper part of the trachea for twelve hours and so great œdema was set up that an immediate tracheotomy was necessary. The plate was finally removed through a Killian tube. A second case was that of a tin whistle which had gone down into the larynx and lodged in the trachea. It was readily removed by a Jackson's forceps.

Dr. E. FLETCHER INGALLS, of Chicago, said that if a patient was suffering from severe dyspnœa due to a foreign body one ought not to try upper bronchoscopy owing to the danger from the anæsthetic. Tracheotomy should be done first and the body would often be coughed out, but if it should not be, bronchoscopy would be much easier through the glottis. Chloroform seemed to the speaker a better anæsthetic than ether in this condition. He regarded the use of the galvano-cantery in the bronchial tubes as dangerous. Bronchoscopy had a brilliant future, but it was not devoid of danger, and should always be done with the greatest caution.

Dr. W. E. CASSELBERRY, of Chicago, said it was possible to train patients to stand removal of papillomata through laryngoscopic methods. As to an anæsthetic, ether should be supplemented with a hypodermic of morphine in order to control the laryngeal reflex. If the morphine was not used he would prefer chloroform. He had never seen any bad results from the use of cocaine in addition to the general anæsthetic.

Dr. A. COOLIDGE, Jun., of Boston, said that in most cases a foreign body in the bronchus could be reached by upper bronchoscopy provided the necessary instruments and ability to use them were available; otherwise tracheotomy and lower bronchoscopy were indicated. The value of the upper operation for diagnostic purposes should not be overlooked.

Dr. H. P. MOSHER, of Boston, showed the following instruments: an œsophageal speculum, an oval œsophageal tube, a mechanical dilator for strictures of the œsophagus, and a triangular laryngeal tube.

Dr. J. P. CLARK described a device he had employed for detecting the exact site of œsophageal stricture. Before passing

the œsophagoscope he made the patient take a glass of water in which was a silk thread, one end of which was fastened to the patient's face by a bit of adhesive plaster. On passing the tube, the thread could be followed down the gullet until it disappeared into a small opening of a pouch into which the tube went, thus showing the exact site of the stricture.

Dr. H. L. WAGNER, of San Francisco, spoke of the value of chloroform in these cases as administered *per rectum*.

Dr. J. M. INGERSOLL, of Cleveland, had found the X ray of value in preventing the recurrence of laryngeal papillomata.

Dr. HALSTED, in closing, said that in several instances his only assistant had been his office nurse. He believed that there was a great future for the investigation of the interior of the stomach by means of tubes. He had seen scars in the stomachs of two patients, had been able to detect inflammatory areas which he believed to be ulcers, and in one case had been able to see the pyloric opening, and even beyond.

The Form of the Hard Palate.

Dr. HARRIS P. MOSHER, of Boston, discussed the formation of the hard palate under the following scheme: (1) The four types of the hard palate: (*a*) well-rounded dental arch; the distance in a straight line from the centre of the second molar on one side to a corresponding point on the other was about equal to the distance from either of these points to a point in the median line between the central incisors; the side lines formed a right-angled triangle; (*b*) narrower than the above and shaped more like the three sides of a parallelogram; (*c*) angular, in which the sides of the arch were straight lines, not curved or bowed, and almost met in a point in front; (*d*) much like (*a*), except that it was wider and larger. (2) The normal form of the palate. (3) The part played by the alveolar process in making the normal arch. (4) The causes of variation from the normal form, which were: (*a*) mal-occlusion of the teeth; (*b*) unequal growth between the parts of the septum; (*c*) low descent of the antra; (*d*) faulty shrinkage and readjustment of the premaxillæ; and (*e*) asymmetry of the halves of the palate. The central idea of the paper was that asymmetry between the halves of the palate was due, not always to asymmetry of the head as a whole, but nearly as often to asymmetry confined to the bones of the face. The author believed that an explanation of fully one half of the cases of asymmetry of the hard palate was to be found in the faulty eruption of the teeth, the anterior teeth as well as the

posterior, and in their faulty occlusion. We should therefore look after the proper eruption and spacing of the teeth, and should call the dentist to our aid.

Dr. D. BRYSON DELAVAN, of New York, said he had never been able to understand why we found the high arch palate so early in life. Occasionally it was present at birth, certainly often before dentition, and before we were able in any way to prevent it.

Dr. A. COOLIDGE, Jm., said that the face contained three sets of cavities: the mouth, orbits, and nasal fossae. The functions of these cavities demanded accurate adjustment of their parts. The cavities were so closely packed together that deformity of one tended to cause deformities in the others. Asymmetrical accessory sinuses he believed to be often a secondary effect rather than a primary cause of deformity, a correcting rather than a deforming factor. Whatever departures from typical growth we might prove or guess to be due to this factor or that, we could often trace the counter-acting asymmetrical growth, attempting to minimise the disturbance of function which deformed jaws or deviated septum or a flattened orbit would cause.

Dr. B. ALEXANDER RANDALL, of Philadelphia, thought that the element of heredity was a prominent factor in many of these cases.

Dr. JOHN O. ROE, of Rochester, called attention to recent views expressed on this subject by various dentists. He said that the effect produced by the open mouth was a narrowing of the jaws by the lateral pressure of the muscles of the face that were drawn more or less tightly. There was also the absence of the opposing pressure of the teeth against each other, which greatly assisted in maintaining their regularity during the period of their eruption. In the closed mouth the tongue also played an important part in keeping the jaws, particularly the upper jaw, properly expanded.

Dr. D. BRADEN KYLE, of Philadelphia, said that irregularity in development seemed to be largely confined to the upper jaw. This would indicate that nutrition played an important part in the development of these two structures. The blood and nerve supply of the upper jaw came largely through bony foramina. Might it not be possible that until a certain age these bony openings were sufficiently large to permit sufficient blood and nerve supply, and that then from some slight injury or malformation their size was interfered with and they became relatively too small for the proper nutrition?

Dr. MOSHER, in closing the discussion, stated that the probable

explanation of the high arch before the second dentition was the faulty shrinkage of the premaxilla. They might swing down into proper position, but did not shrink. Owing to this their vertical diameter was greater than normal. Therefore in order for the posterior teeth to attain the level set for them by the anterior teeth, they must grow downwards farther than usual. For these reasons the arch was high from the start.

Cyst of the Frontal Sinus Communicating with the Frontal Lobe.

Dr. CLEMENT F. THEISEN, of Albany, N.Y., reported a case of this nature occurring in a woman, aged thirty-four, who had had, following a severe fall in childhood, severe head pains on the left side with a discharge from the corresponding naris. There were pressure and fulness over the eyes, some ptosis of the left lid, but no displacement of the globus. Transillumination seemed to justify an opening of the left frontal sinus, when a fluctuating tumour, suggesting a cyst, presented itself at the opening. Considerable thin mucus escaped when it was opened, but this unfortunately was not examined. A considerable portion of the posterior wall of the sinus was missing, and the cyst appeared to extend through to the frontal lobe. Pulsation of the meningeal vessels could be seen. The patient made a good recovery and ten months after operation she was well and free from headaches. The author referred to similar cases reported by Logan Turner and other writers. The literature on the subject was scanty.

Notes on Two Interesting Cases of Frontal Sinus Disease.

Dr. J. PRICE-BROWN, of Toronto, reported the cases. The first patient was a girl with right frontal abscess on whom a previous operation had been done, leaving an open fistula which discharged from time to time. Dr. Brown opened the sinus and chiselled out a rectangular piece of bone from the outer table, curetted the cavity, and made a free opening down into the nose external to the septum and in the region of the anterior end of the middle turbinal. A gold tube was then inserted from above and the wound was closed. Healing was satisfactory, but it was found impossible to irrigate the sinus through the tube. The discharge from the old fistula did not entirely cease, consequently twenty days later another operation was done embracing the area of the fistulous discharge. Some bits of dead bone were removed, and a rubber tube was substituted for the gold one, the outer incision being closed as before. Healing was satisfactory and the dis-

charge entirely ceased. The author thinks that the wearing of the gold tube for the interval between the two operations secured a dilatation of the passage into the nose which afforded permanent and effectual drainage. The second case was one of frontal sinus disease occurring in a man and following an injury. Several months later evidences of sinus involvement were evident, and he came under observation with symptoms of acute trouble calling for immediate relief. Intra-nasal treatment failed to give the desired benefit, so the sinus was opened into above the superciliary ridge and the anterior cells of the ethmoid were destroyed by drilling; a rubber drainage tube was introduced as before, after the sinus cavity had been thoroughly ennetted. The outer wound was closed and intra-nasal irrigation practised. Examination of the sinus contents revealed a pure pneumococcus infection. The wound did not heal by first intention and it was necessary to open it. Granulation commenced and irrigation was carried out through a small rubber tube inserted down into the nose. This tube was eventually removed and healing was in the end satisfactory. Much benefit resulted from the use of the reversed Valsalva procedure in removing discharge during healing from the fronto-nasal passage. While in both cases the anterior ethmoid cells were engorged and the middle turbinal pressed tightly against the septum, in neither case was there any indication whatever of involvement of the maxillary antra.

Sinusitis Pyæmia; Severe Cerebral Symptoms Relieved by Operation; Death; Autopsy.

Dr. LEWIS A. COFFIN, of New York, reported a case in which the sequence of events was expressed by the title of his paper. His patient was a woman, aged thirty-three, who was admitted to hospital with unconsciousness, delirium, and convulsions. There was an orbital cellulitis on the right side of the head with swelling of this entire side, and it was believed that there was an empyema of the frontal and ethmoidal sinuses; furthermore that there was a commencing right-sided meningitis. It was later learned that she had been ill about a week. A Killian operation was done without incident except that the pus was found under high pressure. The bone of the posterior sinus wall appeared healthy. She did well for a few days, but her temperature continued elevated and a radical Caldwell-Luc operation was done on the right antrum, which was found filled with polypi. About this time the woman aborted with a three months fœtus. Later infection

spread from the uterus and various small swellings appeared on different parts of the body. These were opened and finally the patient seemed in fairly good condition. Later hemiplegia developed and brain abscess was suspected. Puncture just behind the frontal sinus at the roots of the hair evacuated considerable pus. Convulsions followed and she died two months after entering hospital. Autopsy revealed the entire right hemisphere covered with a thick purulent exudate on the inner surface of the dura, which was firmly adherent to the pia-arachnoid. The opening of the abscess cavity, which extended down into the white matter, was on the superior surface of the right frontal lobe about midway between the anterior pole and the fissure of Rolando, lying in the superior frontal fissure, and involving the contiguous parts of the superior and middle frontal convolutions. The author thought that the bone was infected when the patient entered the hospital and that an osteomyelitis and pyæmia had already begun.

Dr. W. E. CASSELBERRY referred to the difficulty in such cases as that of Dr. Theisen of making a differential diagnosis between true serous disease and serous exudate into a bony cavity. There was also great confusion in the nomenclature, as some writers used the term serous cyst and others mucocele. Perhaps this was of greater importance in the antrum than in the frontal sinus. We had there the connection between dental cysts which were more common in the antrum than the similar cystic formation in the nose.

Dr. H. P. MOSHER noted that sinus cases fell into two classes of chronic retention and chronic suppuration. There were many grades of mucocele, from the case in which but few of the mucous glands were diseased and but little mucus was poured into the sinus, to that in which all the glands were diseased and the cavity was completely filled with secretion. The larger the amount of blood in such a cavity, the more easily would it become infected. Many a case of chronic suppuration was originally one of mucocele complicated with partial or complete hematocele. He would regard Dr. Theisen's case as one of uninfected mucocele.

Dr. H. L. SWAIN thought that sinus conditions were exactly similar in their pathological significance to aural conditions, and that the use of the terms serous, mucous, and purulent would be sufficient for a clear terminology.

Dr. C. P. GRAYSON, of Philadelphia, questioned the advisability in such cases as had been reported by Dr. Price-Brown of introducing tubes to secure permanent drainage. If Laurens' method

was followed by the opening of the frontal sinus and the removal of the anterior wall with thorough curettage of the cavity and breaking down of all the anterior and posterior ethmoidal cells, gauze could be carried down into the nose and the external wound closed. Packing could be removed in thirty-six or forty-eight hours. He himself had not observed any great tendency to contraction of the drainage channel.

Dr. J. H. BRYAN believed that there was a very great tendency to closure of the channel between the frontal sinus and the nose.

Dr. T. P. BERENS, of New York, said that the whole proposition could be expressed in the statement that the success of any operation upon the frontal sinus depended upon complete drainage, and this could be secured only by complete removal of the anterior ethmoidal cells.

Dr. L. A. COFFIN referred to a case of large retention cyst causing exophthalmos. On opening the anterior ethmoid cells by resection of the frontal process of the superior maxillary bone he found a cavity as large as an English walnut, the contents of which were sponged out in one gelatinous mass. The orbital wall was necrotic and the cavity connected with the orbit. As to drainage-tubes, they were unnecessary in the Killian operation. He had been called upon to do a secondary operation but once, and that was owing to the overlooking, in the primary intervention, of a very narrow supra-orbital recess.

(To be continued.)

Abstracts.

NASO-PHARYNX.

Clark, J. P.—*Anomalous Folds in the Naso-pharynx*. "Boston Med. and Surg. Journ.," April 2, 1908.

Two very interesting cases detailed in which symmetrical folds passing from the Eustachian cushion to the vault of the pharynx were found, one in a boy, aged ten, one in a man, aged twenty-one. Clark considers them to be of developmental origin. *Macleod Yearsley.*

LARYNX.

Delacour (Paris).—*The Local Treatment of Laryngeal Tuberculosis with Mono-iodised Guaiacol*. "Revue Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie," January 11, 1908.

Mono-iodised guaiacol is a chemical body recently discovered. The

author has used 1 and 2 per cent. solutions in olive oil locally in six cases. He found it particularly useful in cases of ulceration with dysphagia. It is detergent and analgesic.

Chichele Nourse.

Dupond, G. (Bordeaux). *The Larynx and Accidents of Occupation.* "Revue Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie," April 25, 1908.

Recent legislation concerning the responsibility for accidents to workmen has rendered accidents of labour a subject for special study. In this article the various injuries to the larynx incidental to occupation are discussed and described. Contusions, wounds, fractures, and burns are dealt with at some length. Then follows a consideration of the duties of the medical expert in estimating the degree of disablement, the length of time the patient will be incapacitated from work, and kindred questions.

Chichele Nourse.

ESOPHAGUS.

Bichaton and Blum (Rheims).—*Painful Spasm of the Esophagus, Salivation, and Aphonia, of Neuropathic Origin.* "Revue Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie," April 18, 1908.

The patient was a gardener, aged fifty-one. His symptoms came on suddenly while stooping, and their onset was accompanied by a sharp pain. Since then, for nearly two months, he had been able to swallow nothing but liquids, and had lost 25 lb. in weight. The diagnosis of the functional nature of the disorder was only arrived at after a careful examination. Its correctness was proved by the rapid and successful result of treatment.

Chichele Nourse.

EAR.

Henry Caboche.—*Contribution to the Study of Early Antrotomy in Certain Acute Suppurations of the Middle Ear.* "Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx," May, 1908.

In this paper illustrative cases are given of a variety of middle-ear infection, occurring in children, where from the very outset antritis is the predominant lesion, quite overshadowing the otitis. Clinically two forms are met with, the painful and the latent. The painful form is characterised by a sharp pain in the antral region; the child complains little or nothing of the ear, but almost exclusively of the mastoid. There is exquisite tenderness on pressure over Macewen's triangle. The membrana tympani does not present the appearance common to acute otitis media; the vascularity is limited to the posterior superior quadrant, and there is bulging in this area. Paracentesis is followed by a discharge, which, without being profuse, is abundant.

The latent form: In this pain is only trivial. There is purulent discharge, without painful mastoid reaction either spontaneously or on pressure. The temperature is not elevated. The membrana tympani resembles that of the preceding variety. In spite of the comparative absence of symptoms met with in this form, osseous lesions are prone to be very extensive; this feature does not depend upon purulent retention, for the discharge is always profuse, but is due to an active ulcerative process. Early antrotomy is demanded; the operation should not be

delayed at the most beyond eight to ten days from the commencement of the affection; if at this time the flow of pus remains copious with no evidence of abating (latent form), or if with abundant discharge antral pain on pressure persists or *à fortiori* pain at the posterior superior angle of the mastoid process (painful form), there is osteitis present and operation becomes imperative.

H. Clayton Fox.

Piffi, Otto (Prague).—*A Foreign Body in the Right Eustachian Tube; Abscess at the Base of the Skull; Purulent Disease of the Atlanto-occipital Articulation; Aneurysm of the Left Vertebral Artery; Death from Rupture of the Aneurysm.* "Archiv f. Ohrenheilk.," Bd. 72, Heft. 1 and 2, p. 77.

The illness began insidiously, and the first striking event was acute otitis of the right middle ear with pain and discharge of pus. The discharge stopped, but the pain persisted and became more widespread and severe as time went on. When first examined the head was held in a stiff attitude, inclined towards the right, but movements were carried out with considerable freedom. The hearing tests showed obstructive deafness on the right. The membrana tympani was red, swollen, and invested with sodden epithelium.

In the naso-pharynx a quantity of pus lay scattered about the right Eustachian orifice, and, when it was wiped away, re-accumulated so rapidly as to prevent a proper inspection of the parts. The right half of the posterior pharyngeal wall bulged somewhat. The soft palate deviated a little to the left on phonation.

A diagnosis was made of acute suppuration of the middle ear with probable gravitation abscess in the deep cervical muscular layers discharging into the naso-pharynx. The mastoid process was opened. An increase in the pains followed the operation. Bier's congestion treatment was tried and given up. The patient died suddenly of collapse.

The title indicates the *post-mortem* findings. The chief interest lies in the discovery of a foreign body of the nature of a blade of grass in the Eustachian tube. From a puncture made by the sharp end of the foreign body in the mucous membrane of the canal, the infection seems to have travelled to the base of the skull and the atlanto-occipital articulation.

The author expresses himself as strongly of the belief that the infection was actinomycotic in nature.

A discussion of the literature dealing with this rare accident is appended.

Dan McKenzie.

Blodgett.—*An Electrical Attachment for a Politzer Bag in Treating Diseases of the Ear by Air Insufflation and Catheterisation.* "Boston Med. and Surg. Journ.," May 21, 1908.

This consists of a small electric heater placed inside the inflation bag and worked by a button fixed in the wall of the bag. Five seconds' pressure warms, twenty seconds' heats the air.

Macleod Yearsley.

Dabney, Wm. R. (Marietta, Ohio).—*Report of Two Cases of Sinus Thrombosis Complicated by Cerebral Abscess in the Temporo-Sphenoidal Lobes.* "Arch. of Otol.," vol. xxxvii, No. 2.

The second of the two cases was remarkable in that although the part of the brain affected was the right hemisphere there were well-marked aphasic symptoms. The patient was not left-handed and the author

thinks the aphasia may have been due to extension of the purulent meningitis to the opposite side of the brain. This is difficult to suppose without there being a simultaneous motor paralysis. Moreover the symptoms subsided after the drainage of the cerebral abscess.

Dundas Grant.

Scott, S. R. (London).—*A Case of Acute Internal Hydrocephalus Secondary to Streptococcal Infection of the Labyrinth.* "Arch. of Otol.," vol. xxxvii, No. 2.

In this case the radical mastoid operation was performed on the ordinary indications without there being any symptoms or signs suggestive of involvement of the labyrinth. It was followed, however, by intractable vomiting, then headache and rise of temperature. A further exploration was made, revealing neither extra-dural abscess nor labyrinthine fistula. Before a third further operation and lumbar puncture were performed the patient suddenly died. A condition of internal hydrocephalus without meningitis was found at the autopsy. This was secondary to perineuritis of the seventh and eighth cranial nerves following acute streptococcal labyrinthitis. The writer thinks that the inflammation must have spread from the middle to the internal ear through the fenestra ovalis. He considers that when labyrinthitis is present nothing short of extirpation of the cochlea and vestibule can be considered as likely to give sufficient drainage; and that in this case such drainage with lumbar puncture (to relieve the distended ventricles) might have altered the course of events entirely.

Dundas Grant.

Knause, F. (Manhattan).—*A Case of Mastoiditis with Brain Complications.* "Arch. of Otol.," vol. xxxvii, No. 2.

This was an acute case in which, with other cerebral symptoms, there developed marked aphasia. The arachnoid was drained and great improvement took place, but when the patient seemed practically well he suddenly died. Exploration for abscess had been negative. On *post-mortem* examination the temporo-sphenoidal lobe was found to be of a yellowish-green colour, and soft and pulpy. It bulged into the basal ganglia, and when cut into it yielded half an ounce of pus. Death was probably due to parenchymatous degeneration of the heart. The writer leaves the following as questions: (1) Was the abscess present at the time of exploration? (2) Were the symptoms due to localised meningitis and the abscess the result of the exploration? He draws attention to the fact that with the aphasia and the agraphia there was no difficulty as to the perception of numbers, and to the remarkable disappearance of symptoms after the exploration, which amounted to little more than a blood-letting.

Dundas Grant.

Bryant, W. Sohier (New York).—*The "Piano-String" Theory of the Basilar Membrane.* "Arch. of Otol.," vol. xxxvii, No. 2.

The author holds that the basilar membrane is not essential to the organ of Corti, and when present is not furnished with the requisite length and mass of fibres to vibrate in sympathy with every note even if the rest of the structures would allow it. Further, the basilar membrane is devoid of the requirements of a resonating body. Helmholtz's piano-string" theory of musical perception is "without foundation in every particular."

Dundas Grant.

REVIEW.

Guide Pratique des Maladies de la Gorge, du Larynx, des Oreilles et du Nez (Carités Accessoires Comprises) (Practical Guide to the Diseases of the Pharynx, Larynx, Ears and Nose [including the Accessory Carities]). By Drs. E. J. MOURE and A. BRINDEL, Bordeaux. With 358 figures, some coloured, in the text. Paris: Octave Doin, 1908.

In this comparatively small volume a very large amount of information concerning the diseases of the throat, nose and ear, is most clearly and attractively presented. Each of the great divisions is preceded by an account of the symptomatology and appropriate general therapeutics. Those points in the anatomy of the parts which are of the greatest clinical importance are briefly described, and in many cases illustrated by original and highly instructive drawings. The sections on the operations on the nasal septum and accessory cavities are well up to date. The same may be said of those dealing with the ear. The methods of bronchoscopy and cesophagoscopy as practised by Killian and by Guisez are fully explained. Among the most interesting paragraphs may be indicated those dealing with the varieties in the form of the normal naso-pharyngeal cavity. Moure's method of practising ethmoidectomy by external operation for neoplasms of the ethmoid is often referred to, and the description given in this work makes its stages extremely clear. The writers, while shortly describing Killian's submucous resection of the septum with preservation of the muco-perichondrium on both sides, prefer to sacrifice it on one side, and claim that their results are better in consequence. They find that in only about 2 per cent. of their cases of frontal sinusitis is it necessary to resort to Killian's operation, the Ogston-Luc method being generally sufficient. The description of the mastoid cells is graphic and practical. In their complete abstention from ligation of the jugular the authors surpass the most conservative of our aural surgeons.

The volume is well bound, well printed, and convenient to hold. These qualities, added to the excellence of its contents, make it a very desirable acquisition.

BOOK RECEIVED.

L. BÉNARD, Professor, University of Lyons. *Maladies du Corps thyroïde et Goitres (Diseases of the Thyroid Body, and Goitres).* Paris: Baillière et Fils. 1908.

OBITUARY.

AMONG the more recent losses to our specialty we note with regret the well-known name of Dr. Schadle, of St. Paul, U.S.A., who died on May 29 from cerebral thrombosis. Dr. Schadle was a professor in the College of Medicine in the University of Minnesota, and was invited to take part in the discussion on the aetiology and treatment of hay fever at the International Medical Congress to be held at Buda Pesth in 1909. He was a well-known authority on diseases of the throat, nose, and ear, and he contributed numerous valuable papers to medical journals.

THE
JOURNAL OF LARYNGOLOGY.
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

BRITISH MEDICAL ASSOCIATION AT SHEFFIELD.

OUR expectations with regard to the success of the work in connection with our special departments at this meeting have been fully realised, as will be seen from the abstract report of the proceedings in the Section of Laryngology and Otology, which we produce in our present number, as well as from various papers of special interest to our readers, read and discussed in some of the other Sections, to which we propose drawing further attention in subsequent issues. The papers by Drs. Ball and McBride on the subject of "Chronic Pharyngitis" contained necessarily, for the sake of completeness, a good deal of material which was familiar to most, but which was well worth the consideration of all. The various remarks on the importance of physical exercise and the limitations of the usefulness of vigorous breathing exercises in the presence of nasal obstruction were of particular interest. Dr. McBride's recommendation of general exercise will no doubt receive universal endorsement, but it will be generally agreed that it must not be made a fetich. It has been somewhat sarcastically said that the happiest people in the world are those who could not run half a mile to save their lives, and that the most miserable are those who have continually to practise physical exercises in order to keep themselves in health. There is no doubt in this a large amount of falsehood, but it contains a germ of truth which is worthy of consideration. Dr. Scaues Spicer's vigorous condemnation of violent breathing exercises in

the presence of nasal obstruction, in support of which Dr. Dundas Grant also offered some arguments, is still of importance, though we venture to think that the public is less warm in its zeal for these exercises than was formerly the case. Mr. Mark Hovell's insistence upon the removal of the posterior ends of the inferior turbinals as a routine proceeding in all operations for adenoids, met with considerable opposition, the feeling of the meeting being to the effect that this addition to the operation was not, by any means, called for in all cases, but only in a moderate proportion. It may be suggested that when the patient is anæsthetised in the recumbent posture, the posterior extremities of the turbinals are probably in an exceptional state of vascularity as compared with their condition when the patient is sitting.

The selection of Mr. Ballance and Mr. Whitehead to introduce the discussion on "The Intra-cranial Complications of Middle-ear Suppuration" could not have been improved upon. Mr. Ballance's pioneer work in regard to the diagnosis and treatment of these conditions has received wide-world recognition, and in this JOURNAL, as well as elsewhere, the masterly studies of the actual pathological material of the Leeds Hospital made by Mr. Whitehead have been widely read. The general *resumé* of the subject can be read with profit, but most interest will attach to the references to what we call the "modern" methods, such as the examination of the blood for leucocytosis, differential counts for the proportion of polymorphonuclears and micro-organisms, also the application of Barany's "caloric nystagmus" tests for the integrity of the labyrinth. On the whole Mr. Ballance looked on the "modern" tests as of value chiefly in corroboration of other evidence. Mr. Whitehead drew particular attention to paralysis of the naming centre as a sign of temporo-sphenoidal abscess. The President deprecated too early exploration, and insisted upon full weight being given to general rather than local symptoms before operation. Dr. Stoddart Barr, in his paper on "Paralysis of the Sixth Nerve consequent upon Chronic Purulent Middle-ear Disease," drew attention to Gradenigo's investigations, which showed that the nerve was often involved when suppuration occurred in certain cells near the apex of the petrous bone.

The methods of dealing with suppuration in the maxillary antrum afforded material for another interesting discussion introduced by Dr. StClair Thomson. Dr. Logan Turner discussed the value of cytological and bacteriological examination. The swing of the pendulum in favour of intra-nasal treatment and away from

alveolar puncture is in the right direction, but surely too pronounced. Each has its field of usefulness.

Among other items of novelty were the communications by Dr. Brown-Kelly and Mr. Waggett on bronchoscopy and œsophagoscopy.

These discussions may be looked upon as reviews of the present position of our knowledge of the utmost importance, even if the subjects chosen have already received considerable attention under similar circumstances.

We hope to make some reference in our next issue to the discussions in the sections of ophthalmology and odontology, which dealt with certain important relations existing between diseases of the nose and those of the orbit and dental apparatus respectively. They might well have been held in joint meetings to the great advantage of everybody concerned.

In all respects the Association Meeting at Sheffield was a thorough success, and the Section of Laryngology and Otolology as presided over by Mr. Wilkinson was no exception to this.

ACTUAL RESULTS OF ŒSOPHAGOSCOPY: (1) EXTRACTION OF SEVERAL FOREIGN BODIES OF IRREGULAR SHAPE (DENTAL PLATES); (2) SPASM OF THE CARDIA (CARDIO-SPASM) OF SEVERE NATURE (DIAGNOSIS AND TREATMENT).

BY DR. GUISEZ,

Senior Oto-laryngologist at the Hotel Dieu in Paris.

TRANSLATED BY K. DICKSON.

WE wish, in this paper, to report several results of œsophagoscopy in the extraction of foreign bodies of irregular shape (dental plates). We wish also to relate a case of severe spasm of the œsophagus, and in this connection we wish to dwell on all the resources which œsophagoscopy offers us, from the diagnostic and therapeutic points of view, in cases of stenosis of the œsophagus.

Dental Plate extracted from the Œsophagus by Œsophagoscopy; Recovery.

CASE 1.—The patient, Ch. V——, living at Commentry (Allier), was referred to us by M. Infroid, of la Salpêtrière, who, by means of radiography, had detected the presence of a dark spot towards the middle third of the œsophagus.

The patient had been sent to Paris by her doctor, who had made several attempts, but had been unable to extract the dental plate, which she had swallowed during sleep. All that she had noticed, she said, was that the discomfort, which she had felt at first at the upper part, was, after the manipulations (introduction of a probe and bougie), localised in the part quite below the level of the neck. During the three weeks since the accident the patient had only been able to take liquids (milk, yolk of egg, such as could be swallowed without pain); she complained of fairly severe pain above the epigastric hollow and at the base of the neck. An œsophagoscopic examination made at the clinic in the Rue de Chanaleilles on June 26, 1907, under cocaine in the sitting posture revealed the dental plate towards the lower third of the œsophagus; it was enclosed by its two extremities, and one of the hooks seemed to us to be fixed in the left wall of the œsophagus. The examination also showed us a dark patch in the middle part of the œsophagus, a result no doubt of the manipulations previously made for the removal of the foreign body. We succeeded in catching hold of it and guiding it towards the upper orifice of the œsophagus, but in vain; it fell back in the œsophagus towards the stomach. We did not wish to prolong this sitting, the patient being very exhausted.

The second operation, under chloroform, performed on June 29 at the Hotel Dien, in the reclining position with the head hanging down, easily enabled us to remove this foreign body, which we found fixed a little above the cardia.

The reclining position and the administration of chloroform greatly facilitated this extraction, and we removed the tube at the same time as the foreign body. Complete recovery took place in a few days.

Dental Plate extracted from the Œsophagus of an adult; Recovery.

CASE 2.—The patient, who was forty-five years of age, was brought from Lille, on January 31 last, by our colleague Dr. Delobel.

This patient, who wore a dental plate, had swallowed it the preceding night. Being awakened by a severe pain, he called in his medical attendant, Dr. Bierent, of Helène-lez-Lille, who tried to extract it with the finger in the mouth and by means of forceps; he wisely did not prolong these manipulations, and called in his *confrère* Dr. Delobel, oto-laryngologist, who brought the patient to

us. When we saw the patient he complained of a very severe pain at the level of the upper part of the neck behind the larynx. He could only swallow water and a little milk. He spoke with difficulty.

Dr. Delobel showed us a radiograph which indicated nothing very particular. During radioscopy it seemed to him that a dark spot could be seen on the screen, which corresponded to the painful spot indicated by the patient, situated some centimetres above the sternal notch.

The operation was performed under chloroform at our private hospital in the Rue Chanaleilles, at 8.30 in the evening, that is to say twenty hours after the accident. The patient was placed in Rose's position with the head hanging down. It was difficult to fix the gag on account of the very bad state of the teeth. All the

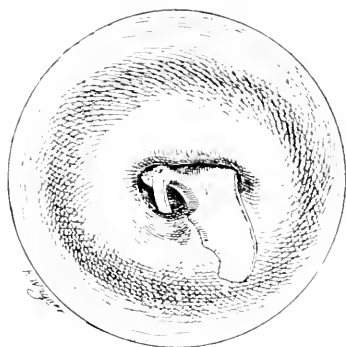


FIG. 1.—Œsophagoscopic appearance of a dental plate impacted in the œsophagus.

time during the administration of chloroform the breathing was bad. He had attacks of suffocation, due probably to the presence of the foreign body which compressed the larynx.

We used a tube of the size of 30 cm. and 13 mm. There was an intense spasm at the upper level of the œsophagus. The annular swelling closed it completely, but local cocaineisation partly put a stop to this stricture; nevertheless, it was impossible to push in the tube more than a few centimetres.

Having introduced it thus far, we perceived a little projection of a yellowish-red colour, which occupied the centre of the lumen of the narrow orifice. This was nothing else but the upper end of the dental plate in question (Fig. 1).

We waited a few minutes; it became partly released. We tried to mobilise it with forceps and to draw it gently towards us, but in vain; it seemed to be fixed in the œsophageal wall, but we were

able to make out that this fixation was due to one of the hooks being buried in the wall of the œsophagus; the more we pulled the more it became pushed into this wall (Fig. 2).

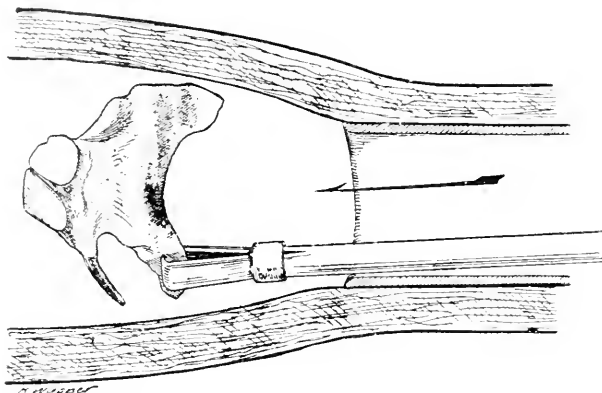


FIG. 2.—First step of extraction: the liberation and pushing back of the dental plate.

We then, under the guidance of light, made the following manipulations: with our forceps we seized the visible end, pushing it a little lower down, the dental plate becoming released very easily; we brought it out into a more relaxed part of the œso-

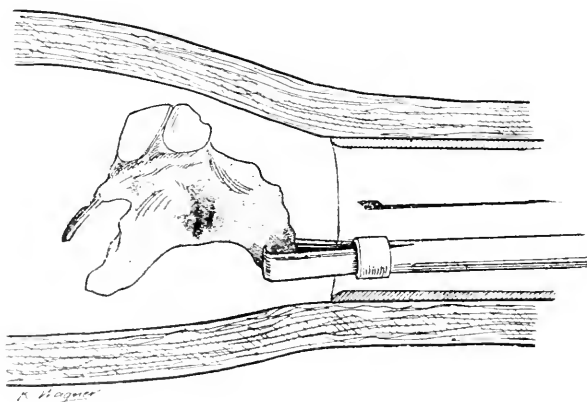


FIG. 3.—The dental plate is withdrawn, after being turned, with its roughnesses and hooks directed in such a way that they may not be able to injure the walls of the œsophagus.

phagus, in the thoracic region. There it was easy for us to reverse its position, to catch hold of the opposite end to that which had previously been visible, and to guide it thus towards the upper extremity. The convex part of the hook being directed upwards, it was impossible, during these manipulations for it to become

fastened to the œsophagus (Fig. 3). Besides, we had very carefully cocainised the mucous membrane of the upper part of the œsophagus, which, being relaxed in this way, did not again contract over the dental plate. It was therefore impossible that it should again become impacted. In this way the foreign body was brought into the mouth by degrees, and taken out at the same time as the tube.

The sequelæ of the operation were normal; the patient had no temperature; the dysphagia, still intense at first, became progressively less until complete recovery took place.

*Dental Plate extracted from the Œsophagus by Œsophagoscopy;
Recovery.*

CASE 3.—On April 30 Dr. Savariaud brought to us at our clinic a patient who the night before had swallowed his dental plate. He was awakened at 10 o'clock in the night by a severe pain at the middle part of the neck and went to the Hospital Lariboisière, where he was admitted at once under the care of Dr. Reynier. He had complete dysphagia, milk alone passing since the accident. Swallowing without food was equally painful. He complained of severe pain at the base of the neck. A radiograph made at the hospital showed a dark spot at the middle part of the neck.

Operation at 11.30 at the Clinic of La Rue de Chanaleilles, in the presence of Drs. Savariaud and Reynier. Rose's position, head hanging down; cocainisation of the back of the mouth, of the pharynx, and the upper third of the œsophagus. Hypodermic injection of morphine and atropine before the operation. Introduction of a tube 15 mm. and 30 cm. long, with short mandrin, easy to pass. Once the tube was introduced, a dental plate, which was in a transverse position with the teeth upwards, could be seen plainly 6 cm. down the œsophagus. We seized it with forceps to the right of the teeth and easily released it once the cocainisation had taken effect. We brought it up to the level of the cricoid, but there it became caught by its hooks. We drove it back a few centimetres into the wider part of the œsophagus, took hold of it by the opposite end, turning it right round, and were fortunate enough to be able to bring it out into the mouth. The duration of the operation was a quarter of an hour. The operation sequelæ were excellent; complete recovery took place. Four days later we showed the patient at the Société de Chirurgie de Paris (May 6, 1908).

Such are the foreign bodies which we have most recently extracted by means of œsophagoscopy.

Three years ago we had the opportunity of extracting a certain number, and since then, by an almost analogous technique we have succeeded in removing thirteen foreign bodies from the bronchi. (Esophagoscopy, the technique of which we do not wish to describe here, having done so elsewhere, is a method which, on the whole, allows of determining exactly the seat of the foreign body much more surely than all the other proceedings formerly employed.

Undoubtedly the X-rays gave results in a certain number of cases and already constituted real progress in establishing the diagnosis, but in the Röntgen-ray image the shadow of the foreign body might be covered by that of the vertebral column or that of the heart (Gottstein).

Many foreign bodies do not give a shadow on the screen; for instance, dental plates, fish-bones, "corozo" buttons. Moreover, a frequent occurrence in connection with foreign bodies in the œsophagus is the displacement to which they may be liable from one moment to another during the operation. They may become released, be swallowed, or change their position.

Relying in this way on radiography, we have formerly searched in the cervical portion of the œsophagus for two foreign bodies—a bone and a dental plate—which were, however, not in the neck, but in the thoracic portion of the tube. The question arises as to what an external operation would have effected in such a case. An external operation (cervical œsophagotomy) would at any rate have been useless for searching in the œsophagus (relying on the indications of radiography) for a foreign body which was in reality in the thorax. (Esophagoscopy alone permits of localising in a precise manner the seat of the foreign body. At the same time it leads, as we shall see, to the most reliable therapeutic effects. It shows how the foreign body is situated, if it is impacted or not, if there are any lesions of the œsophageal walls, and if, working under direct vision, it is possible to liberate it, to mobilise it, and to extract it.

There are certain technical points in regard to these observations which we wish to point out. A dental plate is, one might say, the foreign body whose extraction by the natural passage presents the maximum amount of difficulty on account of its irregular shape and its hooks which threaten to stick into the œsophageal walls at the moment of extraction. All the above-mentioned foreign bodies were very firmly impacted.

What are the agents which fix foreign bodies in the œsophagus? There are two principal agents: Firstly, certain conditions due to the foreign body itself—its volume, its roughness, its points, which stick in the œsophageal walls. But these particulars have always seemed to us accessories in the cases which have come under our observation.

The primary element, that which brings about the fixation of the foreign body, is *spasm*. The irritation produced in the relatively narrow parts of the œsophagus, in particular at the level of the upper region and at the level of the cardia, brings about an intense contraction of the muscular fibres which help to constitute the walls of the œsophagus, and finally causes fixation of these foreign bodies.

Therefore, if by some means this spasm can be overcome, the foreign body can be mobilised at the same time, this being the most important time for performing without danger all manipulations for the extraction. Further, by the light afforded by the œsophagoscope it is possible to introduce a cotton-wool holder and to stop the spasm by means of thorough cocaineisation of the mathematically determined spot where the foreign body is situated.

The spasm ceases, it may be said, spontaneously, as soon as the cocaineisation is complete. The spasmodic ring relaxes and the foreign body becomes detached, so to speak, of itself. When this does not happen spontaneously it is possible by the help of slight manipulations of the hooks by means of forceps to mobilise it.

So it was, in the dental plate case mentioned above, that we were able to reverse the foreign body completely, placing it in such a position as to render the extraction free from danger to the walls of the œsophagus; we guided it in such a way that its hooks and its roughnesses would not stick into the œsophageal wall. Further, the cocaineised mucous membrane no longer arrested the foreign bodies, for it was the spasm which arrested them, and the anæsthesia hindered the production of this spasm.

Lately, in order to facilitate the extraction of the foreign bodies we have used with good result a tube with an oval section, measuring 16 to 18 mm. in its large diameter. We have also had made by Collin a dilatation tube, the two valves of which in opening separate the walls of the œsophagus, releasing the foreign body and protecting the walls of the œsophagus against irritation whilst the extraction is taking place.

All the patients whose cases we have reported above recovered,

so did all those who came under our observation in good time before the onset of cervical or intra-thoracic complications.¹

This is an indication that intervention by means of œsophagoscopy should be as early as possible.

*Spasm of the Cardia of Severe Nature; Diagnosis and Cure by
Esophagoscopy.*

M. P. DE BOURGES was referred to us during the month of December by our colleague and friend Dr. Millitt. He consulted us on account of difficulty in swallowing. He told us that for two and a half years he had had a certain amount of difficulty in deglutition. The first attack of his complaint dated from July, 1904; having badly masticated a piece of meat he was obliged to interrupt his dinner. Afterwards he had several attacks of dysphagia for liquids as well as for solids. These attacks occurred at the beginning or in the middle of a meal. The patient experienced a kind of contraction at the upper part of the neck when he wished to swallow; his œsophagus, he said, tightened, and he found difficulty in swallowing liquids as well as solids. Sometimes he was obliged to get up from the table, being troubled chiefly by this contraction at the upper part of the neck. At other times he hardly felt this contraction at the upper part, swallowing almost normally, but directly, or some hours after the meal, he had regurgitations or even vomitings, in which he recognised the food he had swallowed.

He complained both of sensations of smarting and burning, and acid regurgitations which came into the mouth from time to time. For all these reasons he had become much thinner during the year. He had lost $7\frac{1}{2}$ lb. ($3\frac{1}{2}$ kilogrammes), and actually only weighed 8 st. 11 lb. (56 kilogrammes). He feared cancer of the œsophagus and was very much tormented by this idea.

His doctor's (D. Clement) treatment consisted in dilatation with olive-shaped bulbs on a whale-bone mandrin; sometimes these passed very well; at other times, on the contrary, they stopped at the level of the cardia.

We made an œsophagoscopic examination towards the end of December, 1907, at our clinic in the Rue Chanaleilles. The examination was made under cocaine and in the recumbent position with a tube of 35 cm. long and 13 mm. in diameter.

¹ In one case which we saw cervical phlegmon had taken place and œsophagoscopy was performed too late.

We found that there was difficulty in introducing the tube at the level of the upper orifice, which was, as a matter of fact, contracted by a violent spasm, the position of which corresponded to the level of the region where the patient chiefly localised his discomfort on swallowing; this orifice, through which an effort was made to push in the tube, had the appearance of a tench's snout, and it seemed to resist all pressure made to penetrate into the œsophagus. We cocaineised with a 10 per cent. solution, and waited a few instants. On pressing lightly with the tube we saw that the mucous membrane unrolled; the œsophagus opened and the tube then entered a large cavity. In fact we found, just below the upper point which was spasmodically contracted, the existence of a large pouch filled with curdled milk and mucus of a sourish odour. There were at least from 5 to 7 oz. (150 to 200 grammes) in this pouch, and as it seemed to us to be only half full we concluded that it could contain at least from 11 to 14 oz. (300 to 400 grammes).

We emptied it of its contents and washed it out. We could then ascertain that the mucous membrane of this pouch was red, especially in its lower third. There were, particularly in this region, papillated hypertrophies; it also bled at the least touch of the cotton-wool holder, and as, on the other hand, there existed in the neighbourhood of the lowest part white patches which were detached with difficulty, we wondered whether they were not plates of leucoplasia, and whether we had not the first stages of cancer to deal with.

The cardia was quite closed; it looked to us like a wrinkled funnel and was very much tightened. It resisted the pressure of the tube and cotton-wool holder; it was immobile, did not make any respiratory movements, and there was no return of liquid from the contents of the stomach. We cocaineised well; it relaxed and allowed of the passage of a soft bougie of No. 20 calibre.

Nevertheless, in view of the precautions indicated by this examination, we did not wish to push the dilatations further, and we postponed the remainder of the examination for a week.

We ordered the patient to wash out the pouch during this period; we recommended for him a milk and egg diet in order to avoid all irritation from *débris* of food in this dilated pouch.

We saw the patient eight days later, that is, on January 6, 1908. He told us that all discomfort on deglutition, at the upper level, had now disappeared. He swallowed much more easily and he no longer had a spasm at this upper part. He felt much relieved

in this respect. Nevertheless, he continued to vomit almost daily and to have regurgitations. We made another œsophagoscopic examination on January 6, and we passed the tube more easily at the level of the upper extremity. After irrigating and cleaning the pouch we were able to ascertain that the œsophageal mucous membrane was still red, but that the white patches which we had seen at the first examination were absent; these were no doubt patches of curdled milk or aphthæ; they could not have been leucoplastic plates.

After irrigation and careful evacuation of the pouch we ascertained that the cardia still had the same appearance as at the first examination; it looked closed and immobile. It seemed to us that this time the diagnosis of simple spasm of the cardia had to be absolutely admitted. It could not be from external compression for it maintained its normal position; it did not seem to us to be pushed more to one side than the other. Besides, after very careful cocainisation it opened easily and soft bougies could be pushed in. We were then able to dilate it and to pass successively large bougies until No. 30 was reached.

The patient was relieved after this sitting; he had much fewer regurgitations; nevertheless, he still continued to vomit from time to time, two or three times during the following week. He no longer felt discomfort or spasm at the upper part of the œsophagus.

Our diagnosis being confirmed, the treatment which we instituted consisted in dilatations every eight days of the cardiac sphincter, and irrigations of the pouch.

The patient himself practised the irrigations every day by means of Faucher's tube, with an alkaline lotion, the object being the avoidance of irritation from the lodgment of particles of food in the œsophageal pouch.

The patient was much improved by this treatment; he had scarcely any more regurgitations, and œsophagoscopic examination showed us that the pouch had diminished to at least two thirds of its original volume. We hoped that it would still diminish, and at our last œsophagoscopic examination we were able to ascertain that the mucous membrane had become absolutely normal, and that it no longer showed any trace of inflammation. Latterly we added to this treatment, in accordance with MM. Thirolloix and Bensaude's indications, anti-spasmodic applications with the high frequency current, which our friend Dr. Delherm was very willing to undertake, hoping thus to diminish and even eliminate the spasm which still persisted (although to a much less degree) at the level of the

cardia. On the other hand, we practised from time to time dilatation of the cardia by means of olive-shaped bougies, and we passed consecutively Nos. 33 to 36, hoping, as had been the case in other patients previously treated, that this mechanical dilatation would act at the same time as a dilator and anti-spasmodic. This catheterisation could now be carried out without the help of the œsophagoscope, the subjacent pouch having diminished to a great extent and no longer acting as a *cul-de-sac*, so that the possibility of making a false passage was removed.

We passed from time to time some bougies with large diameters, Nos. 46 and 47; the spasm has almost entirely disappeared, there having been no vomiting for three months.

The gravity of the complaint in this patient was evident. He was very thin and alimentation was a serious problem to him. He vomited almost invariably all he swallowed—liquids as well as solids. There was, therefore, an *obstruction in the œsophagus*. But at what point was it situated? Clinical signs could not show this precisely. The sensations complained of by the patient were always wrongly localised. So it has been in two of our cases; the patients complained of discomfort at the base of the neck occasioned by the cervical spasm, which was always most clearly perceived by the patient. On the contrary, in a third case the patient complained more of gastric trouble. Patients feel pain in the cardia and localise an obstruction there with difficulty. This explains the frequent errors in localisation and how these affections may be mistaken for dilatation of the stomach with stenosis of the pylorus (Fleiner's case, No. 3, reported by Bécélère, *Soc. Méd. des Hôpitaux*, February 27, 1908).

There are, however, two improved means of localising the obstruction more precisely—catheterism and radioscopy.

The catheter, provided with an olive-shaped bulb, would generally give us information as to whether the spasm is situated well at the cardia. However, in cases of great dilatation with lateral *culs-de-sac*, it is always difficult to find the cardia exactly with a bougie introduced without the help of vision.

Radioscopy, by tests combined with the swallowing of bismuth, shows us the position of the stricture.

But what is the *nature* of this stricture at the level of the cardia? Is it a spasm, or is there a narrowing due to organic lesion, by compression? Neither of the means just mentioned are capable of solving this problem. In all the observations published up till now, of dilatation or of idiopathic spasm of the œsophagus, there

is this want of precision as to this special point, which is so important and which holds the key to the therapeutics.

Œsophagoscopy which gives us the means of seeing directly the affected part, will alone provide a solution to this problem. In addition it gives us information as to the nature of the subjacent pouch, the presence of a dilatation, of diverticula, the exact condition of the mucous membrane, or the existence of other concomitant spasms.

In order to make this examination we use an œsophagoscopic tube of 50 cm. and 13 mm. in ordinary cases. We have been able to make the examination in all our patients under simple local cocaineisation. The examination has been possible in a sitting posture. It has always been easy and the patients have lent themselves to it with the greatest confidence, understanding very well that it was a method by which their complaint could be seen and its nature recognised.

The first condition in œsophagoscopy which has struck us is the existence of a spasm, which may be said to be constant at the very commencement of the œsophagus. It is, moreover, to this point that patients generally draw our attention. In one case it was found very difficult to introduce the œsophagoscopic tube, and the œsophageal wall seemed to tighten in front of it. After the local application of cocaine and by taking a few seconds to apply the tube we were able to overcome this spasmodic condition of the entrance very rapidly. We passed over the cervical portion of the œsophagus at once, and came to a more or less vast pouch occupying at least three quarters of the length of the œsophagus. It seemed to us to be of a regular shape and to have developed almost equally from each side of the axis of this canal.

It is of fusiform shape in slight cases; in more chronic cases (which alone need concern us here) it has the shape of a sort of carafe to which the lateral bulgings seemed to extend downwards on each side of the œsophagus. In the patient whose case we have related the left *cul-de-sac* was larger than the right.

What are the œsophagoscopic characters of spasm of the cardia? It is known that normally the cardia has the appearance in the œsophagoscope of a funnel with closed lips, but which is movable along with the movements of respiration. Its orifice opens from time to time, letting out a mucous secretion from the stomach, in bubbles which burst against the interior of the tube (Fig. 4).

In a spasmodic condition this appearance is quite altered. We

know that a spasm does not only attack the cardiac orifice, properly so called, but that it may exist equally at any point of this terminal tubular part of the œsophagus which commences at the diaphragmatic orifice and terminates at the cardia. The œsophagoscopic appearance has seemed to us quite different

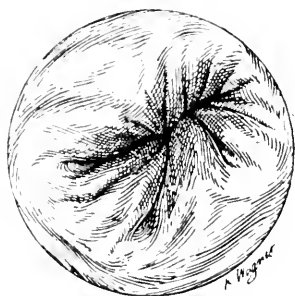


FIG. 4.—(Esophagosopic view of normal cardiac orifice.

according as we had to deal with a spasm of the cardiac orifice, properly so-called, or of the diaphragmatic tubular portion of the œsophagus.

In spasm of the *diaphragmatic portion* the lumen of the œsophagus has the appearance of two lips tightly closed one against the other, the walls of the œsophagus seeming to come in

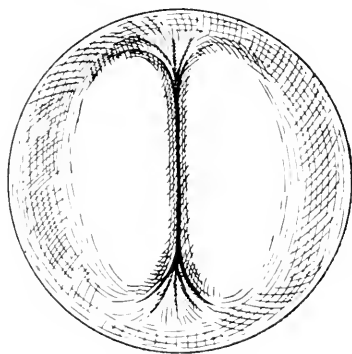


FIG. 5.—(Esophagosopic view of a *spasm* at the level of the diaphragmatic opening.

contact for a certain distance (Fig. 5). On the contrary, if the spasm is of the *cardia properly so-called* the appearance of the cardia is quite different; it is very much folded, and the folds are deep and closely pressed against each other; it takes a funnel-shaped form of more or less depth. The lumen of the œsophagus is absolutely closed and punctiform (Fig. 6). This orifice, contrary

to what is observed in the normal condition, does not allow of the return of any mucous secretion from the stomach at the time of examination with the tube, and it does not move with the respiratory movements. The folds have a concentric appearance, and the orifice itself is always in its normal position and is never

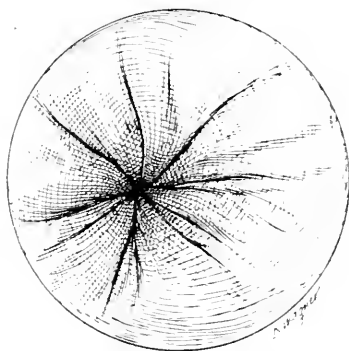


FIG. 6.—Spasm at the level of the cardiac orifice.

displaced laterally, contrary to what one observes in cases of external compression. On pressing with the tube in trying to pass through the cardiac orifice a certain amount of resistance is felt, and the patient complains of pain. But if the cardia is well cocaineised it is soon seen to open, and the tube goes right down to the stomach without much effort.



FIG. 7.—Esophagoscopic view of an ulcerating form of cancer of the œsophagus.

When there is *unquestionable carcinoma* the diagnosis by inspection is of the simplest; the infiltration of the walls and the presence of hæmorrhagic granulations determine the diagnosis (Fig. 7). The diagnosis of *early carcinoma* is more difficult, but in this case the infiltration, the immobility of one of the walls as compared to the flexibility which persists on the other side, the

impossibility of passing the tube farther down than the seat of this infiltration, are some of the characteristics which distinguish it from simple spasm. Further, in the case of cancer the orifice is not completely closed during the examination; mucous secretions constantly return from the stomach, contrary to what is observed in cardio-spasm.

If we dwell further on this point in diagnosis it will be found that it is with carcinoma that cardio-spasm has been most often confounded. It is the affection which patient and doctor dread most among all the spontaneous changes in the œsophagus, and therefore it is important to make an exact diagnosis in order to undertake local treatment if it is possible.

In external compressions of the œsophagus a combination of

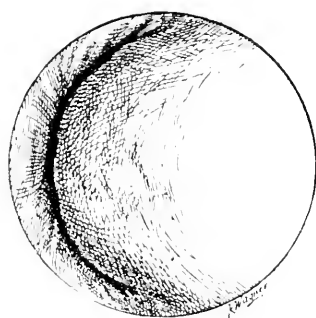


FIG. 8.—Esophagoscopic view of an external compression of the œsophagus from right to left.

symptoms, which suggests simple cardio-spasm, is brought about both by the consecutive organic stenosis and by the spasm which they cause. In two patients who were sent to us with a similar diagnosis, in one case there was compression from ectasia of the abdominal aorta, and in the other compression by an intra-abdominal tumour.

The unilateral inward arching of the wall, the deformity of the lumen of the œsophagus, which had been displaced and pushed over to the opposite side and reduced to a semi-circular slit, is quite different to cardio-spasm (Fig. 8). Besides, in cases of aortic ectasia compressing the œsophagus there are undoubtedly pulsations at the level of the œsophageal wall.

Ordinary cicatricial contractions from burns with caustics are generally easy to diagnose and cannot be mistaken for pure spasm.

TREATMENT.

With this exactness of diagnosis it is to be seen that a *rational treatment* may be instituted. There are many elements to combat in this affection. The first duty in severe cases is to render it possible for the patient to take food and to guard against inanition. Then it is necessary to see that the pouch subjacent to the cardio-spasm diminishes in volume by every means, otherwise the peristaltic movements could no longer cause the food to progress towards the stomach. Secondly the irritation of the mucous membrane, caused by a stagnation of liquids and food in the interior of the pouch itself, must be relieved. Finally and above all it is necessary to combat the cardiac spasm, the contraction of the sphincter, which is the primary cause of this affection. When the cachexia is very advanced it is possible, œsophagoscopy allowing of an exact view of the cardia and its eccoinisation, to catheterise it with a bougie and to provide subsequently for the alimentation of the patient; there is no danger in passing this bougie, as it is certain that there are no parietal lesions. Thanks to the distinctness of the diagnosis, a treatment is possible which has seemed to me very efficacious under the œsophagoscope, but which if done in the dark would be impossible and dangerous, namely *mechanical dilatation of the cardiac sphincter*. It is known that dilatation is recommended in spasm of all orifices, of all sphincters. Is not dilatation performed in spasm of the urethra and of the anal sphincter? There is no fear of going in the wrong direction as when dilatation is practised without the aid of vision. In the latter case the bougie may go into one of the lateral *culs-de-sac*. With the œsophagoscopic tube this inconvenience no longer exists, for not only is it possible to see the exact position of the orifice, but, placed exactly above the cardia, it really serves as a mandrin for the introduction of dilating bougies.

In order to *combat the inflammation of the mucous membrane*, irrigations should be performed with Faucher's tube and an alkaline solution; these counteract this symptom very well, which keeps up and exaggerates the spasmodic condition of the cardia.

High-frequency currents, the anti-spasmodic power of which is very valuable, are equally applicable. All these means are valuable adjuncts which may be effectively employed, but mechanical dilatation must be the basis of our treatment. •

Esophagoscopy has allowed us to follow step by step the pro-

gress of cure in all the patients whom we have treated. The first sign of improvement is diminution of the size of the pouch. The latter was actually reduced to half its size in our patient. The mucous membrane rapidly resumes its pinkish-grey colour under the influence of irrigations and of the more regular working of the œsophagus, which hinders stasis.

The stricture of the cardia gives way with more difficulty; it is that after all which plays the principal part in this affection, and the tenacity with which it persists proves this amply.

We have had occasion to treat four patients suffering from severe cardio-spasm; all four had very marked dilatation of the œsophagus and were in the last stages of cachexia. In all the clinical signs of a diagnosis of cancer of the cardia were present. Œsophagoscopy enabled us to establish the diagnosis of spasm and to undertake a treatment which rapidly brought about amelioration of all the symptoms.

Œsophagoscopy has therefore brought an element of accuracy into both the diagnosis and treatment of a very serious affection, which not only brings the patients to a state of inanition, but sooner or later may become complicated by cancerous degeneration.

LARYNGOSTOMY AND TRACHEO-LARYNGOSTOMY IN THE CURE OF SEVERE CHRONIC STENOSIS OF THE LARYNX OR TRACHEA, ESPECIALLY WHEN CICATRICIAL.

BY DRS. SARGNON AND BARLATIER,
OF Lyons.

(Translated by MR. CHICHELE NOURSE.)

(Continued from page 415.)

DILATATION with the rubber drainage-tube should be slow and progressive. The degree of dilatation obtained at any time must on no account be lost. If progress becomes difficult a tube of the same calibre should be used for some time before attempting to change it for a larger one. At first the size of the tube can be increased rapidly, except in cases of closure, in which a new laryngeal canal has to be formed.

As a general rule, however, more than one or two sizes should not be passed over at one time, and not even that every time. In the desire to hurry the case along too fast there is a risk of

causing superficial sloughing of the newly-formed mucous membrane, with pain and a return of foetid suppuration.

At first the tube should be changed every day, as it becomes foul very quickly. After the first month it usually needs changing only every two or three days, and at a much later stage of the case it may be left for four, five, or even six days. The frequency with which the tube is changed must depend upon the duration of the suppuration and fœtor, and upon the progressive decrease of mucous secretion.

It is very important also that the length of the tube requisite for each case should be settled exactly, and that the length should be noted and always adhered to until the end of the period of dilatation. In order that this length may not be lost, we have been in the habit of saving the previous tube, so that the new drainage-tube can be got ready before the dressing is disturbed. Naturally the same scrupulous care must be exercised each time the tube is changed, with regard to asepsis, and regarding the proper position and the fixation of the tube, as at the first dressing. The tube must be well covered with vaseline before it is placed in position.

Lastly, the threads which fix the tube must be examined in the course of the dressing, for if they are too tight they will cut the edges of the wound and hinder the healing process. To what degree should the process of dilatation be carried? First of all it may be laid down as a principle that it is requisite to obtain a much larger calibre than the normal; for allowance must be made for the contraction which occurs after dilatation and the plastic operation are completed.

In order to give an exact idea of the slowness of the dilating process, we may say that in our two first cases we began with No. 15, and ended with Nos. 30 and 31, which represents a dilatation of 10 to 12 millimetres in diameter. These were children of four and five years old. This result was obtained in one case in six months, and in the other, a case of total closure, in fourteen months. Now we require less than half the time. In the adult we continue the dilatation to about No. 45.

The Dressings.—The dressing is naturally subordinate to the state of the operation wound. After a minute study of our cases, we have come to the conclusion that the cavity laid open and the laryngeal fistula invariably pass through the same phases, although the duration of each phase varies. Serious cases require much more dilatation than others.

FIGURES TO ILLUSTRATE DRS. SARGNON AND BARLATIER'S PAPER ON
"LARYNGOSTOMY."

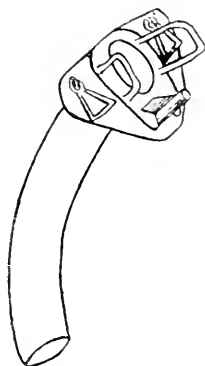


FIG. 1.—Rabot's cannula for laryngostomy. (See p. 371.)



FIG. 2.—Sargnon's cannula for laryngostomy (modification of Lombard's). (See p. 371.)

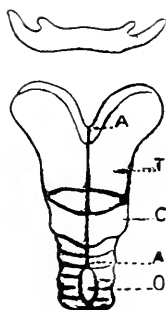


FIG. 3.—Incision. T. Thyroid cartilage. C. Cricoid cartilage. O. Tracheotomy opening. A. A. Incision for tracheo-laryngostomy. (See p. 372.)

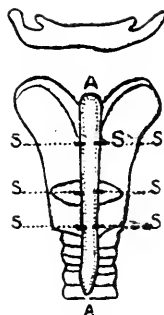


FIG. 4.—Suture of the laryngo-trachea to the skin. (See p. 411).

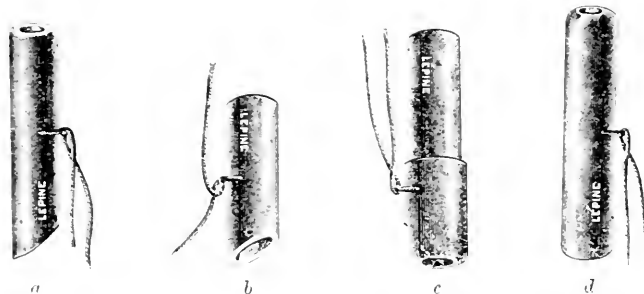


FIG. 5.—*a*. Drainage tube as generally used. *b*. Drainage tube shortened. *c*. Drainage tube so employed as to effect greater dilatation at one point. *d*. Non-bevelled drainage tube. (See p. 412.)

We distinguish three stages: At the outset we have breaking-down and sloughing—the stage of sloughing. Next, the fistulous opening granulates and new skin begins to be formed—the stage of granulation. Lastly, the commencing epidermisation develops normally while dilatation is going on, and eventually the regenerated mucous membrane blends insensibly with the skin which meets it—the stage of epidermisation.

Stage of Sloughing.—In our earliest cases this stage had a duration of one or two weeks. We are now able to reduce it to its minimum; in the most serious cases it lasts barely eight days, and in milder cases sometimes hardly three days. We endeavour to reduce both its intensity and its duration as much as possible, as we have had a case which proved fatal from this cause.

Sloughing generally begins on the second day after the operation in the form of small whitish patches. It appears first in the upper part, and then at the level of the vocal cords; as a rule the site of the tracheotomy tube and the lower part of the operation wound are unaffected. In the only case in which we saw the latter region invaded, death occurred from pseudo-membranous sphacelus passing down the trachea and bronchi, and broncho-pneumonia.

In ordinary cases the slough consists of a thin membrane with an offensive odour, rather easily detached with a tampon soaked in oxygenated water. When the membrane is thick, tenacious, very fetid and diphtheroid in character, the prognosis is serious.

Accompanying the gangrene there is usually some fever, which falls a day or two after the disappearance of the last spots of sphacelus. It coincides with a slight amount of diffuse bronchitis without fine râles. The sphacelus is a septic process, descending from the buccal cavity, and is due to an abundant microbic flora. It is necessary, in order that a track for the tube may be formed, and that the cicatricial tissue may be disintegrated. But it must be limited by daily dressings, by cleansing the part with wool soaked in oxygenated water, by temporarily replacing the drainage-tube with gauze, and, if necessary, the prompt removal of the sutures.

It would be a good plan, no doubt, for keeping down the sloughing to use a gauze tampon for the first few days, and not to begin dilatation with a drainage-tube until later.

With the same intention we also advise that not more than three sutures should be used on each side, not tightly tied, and that sloughing spreading along the threads should be watched for. If it becomes extensive the stitches must be cut without hesitation after the fourth or fifth day.

During this period a plug of vaselined gauze is placed at the upper angle of the wound to prevent its union.

The Stage of Granulation.—In ordinary cases this stage lasts at least a month, and considerably more in graver cases. It is necessary to keep down the exuberance of the granulations and to encourage the growth of new skin. For this purpose we use nitrate of silver.

Epidermisation takes place almost entirely by the advance of the epidermis towards the granulations, as they are cauterised. To gain time cauterisation should be performed in detail close to the line of new epidermis, without touching it. This point is essential, and, in our opinion, these little precautions tend to shorten the healing process considerably.

We also draw attention to the importance of avoiding too great a narrowing of the original wound. This is, perhaps, the most difficult point of all. If the operation wound is continued directly into the tracheotomy wound there is no risk of closure below, as the cannula keeps the parts separate; but at the upper part the skin and thyroid cartilage have an almost uncontrollable tendency to unite from above downwards. This must be combated at each dressing by dilating the laryngeal wound and plugging the superior angle with vaselined gauze, after the tube has been placed in position.

If, from one cause or another, the upper part of the wound becomes united too much (in spite of every precaution there is always about half a centimetre of union) it is easy to divide it with a probe-pointed bistoury after the application of cocaine.

However, as total laryngostomy ought to be changed into a tracheo-cricostomy in order to diminish the difficulties of the plastic operation, the thyroid cartilage should be allowed to unite gradually, while it is kept dilated by the drainage tube, round which the cavity is moulded.

The Stage of Epidermisation.—For perfect junction of the skin with the mucous membrane one or two months must be allowed in average cases, and notably more in serious ones. A time comes when the maximum of dilatation has been obtained and a tube of the same calibre is always worn. The laryngo-tracheal mucous membrane gradually becomes healthy, and is completely regenerated. At the same time the fistulous opening becomes more and more covered with skin, until epidermisation is complete, even at the upper angle. As dilatation progresses the skin is drawn more and more inwards by the tube, and often forms small

folds opposite the fistula. The cartilage is regenerated little by little. The tracheal spur, which we regard as an important obstacle to respiration in the tube-wearer, is much reduced, or has even disappeared by this time. We may add that during the second stage, and at the commencement of the third, the remains of this spur require to be cauterised at almost every dressing.

In this stage, and sometimes also in the second stage, a child left without a cannula or a drainage-tube and with the fistula closed by a pad is able to breathe easily. We then make use of a tube without a plug, so that the child breathes partly through his cannula and partly through the drainage-tube. To render respiration easy, fenestrated cannulæ may be used, or a very small cannula.

One of our patients never bore the open tube, as liquids ran into the trachea during deglutition. But when he was once relieved of the tracheal cannula and the drainage-tube, swallowing took place without any trouble.

It is very important in this last stage to allow the wound to close progressively from above downwards upon the rubber dilator. The terminal plastic operation is thus reduced to a minimum.

The whole of the thyroid should be allowed to unite, leaving only a fissure in the trachea and cricoid cartilage of about 2 cm. in length. When buccal respiration has been established through the open drainage-tube, after a sufficient dilatation the patient may be relieved of his cannula, either by removing cannula and tube and closing the tracheal fissure with a dressing, or by omitting the drainage-tube and plugging the cannula at first by day and then at night. We have tried both these procedures with good results.

When the child has had the tube and cannula taken away, it is well to keep him under observation for the first few days. In one of our cases, in consequence of emotion and severe physical pain, the child fell down in a state of asphyxia. Breathing was at once re-established by separating the skin of the edges of the fistula with the fingers without replacing the cannula. If this simple manœuvre does not succeed in a similar case a short and slightly curved cannula should be introduced, for the dilated canal is straight and quite superficial.

The Plastic Operation.—The plastic operation should not be performed immediately for fear that an inflammatory complication, such as measles or whooping-cough, should necessitate a new tracheotomy. In one of our cases we had such an alarm on account of measles. An enormous inflammatory œdema of the laryngo-

FIGURES TO ILLUSTRATE DRS. SARGNON AND BARLATIER'S PAPER ON
"LARYNGOSTOMY."

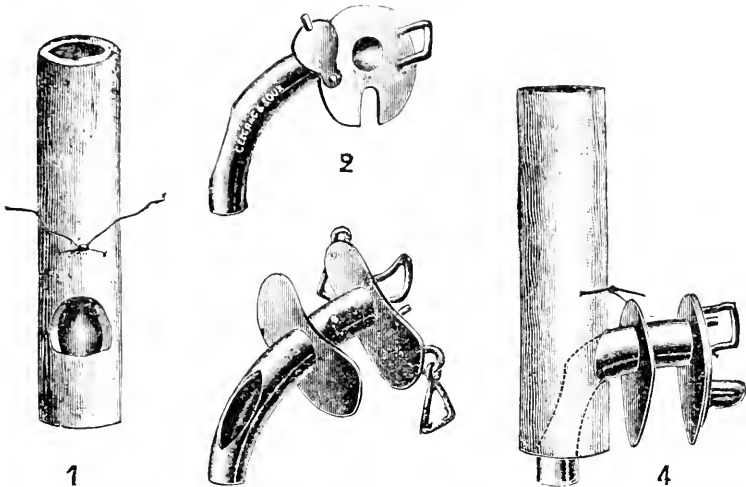


FIG. 7.—Drainage tube and fenestrated cannula sheathed the one in the other, as used by Dr. Fournier for dilatation in difficult, long-standing cases. (Drawings kindly provided by Dr. Meynet, of Marseilles.) (See p. 413.)

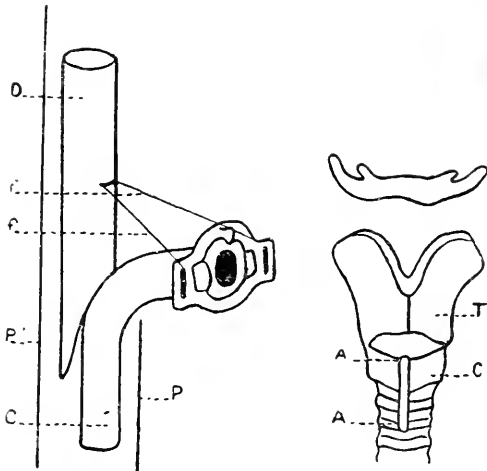


FIG. 6.—Relation of the dilating drainage tube to the cannula *in situ*; the angle made by the posterior wall at the level of the cannula is not represented. C. The cannula *in situ* in the larynx. D. Indiarubber drainage tube. f.f. Threads for fixation of the drainage tube to the cannula. P. Anterior wall of the trachea. P.1 Posterior wall of the larynx and trachea. (See p. 412.)

FIG. 8.—Larynx and trachea before the plastic operation. A.A. Permanent tracheo-cricoid fissure. T. Thyroid cartilage. C. Cricoid cartilage. (See p. 480.)

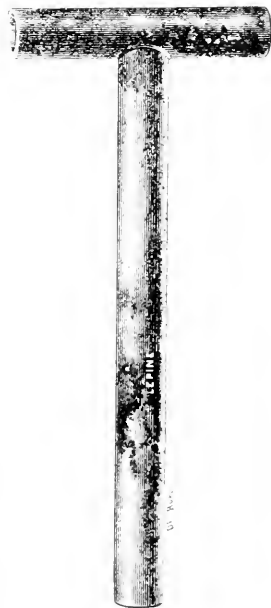


FIG. 9.
Killian's T-shaped drain. (See p. 482.)

tracheal canal supervened with dry mucus in the trachea. We instilled boiled water through the tracheal fistula and drops of oil of sweet almonds, and used vaseline oil through an atomiser. The little patient made a complete recovery without the necessity of inserting a cannula. If the fissure had not been preserved, a new tracheotomy would certainly have been necessary.

Moreover, before closing the fistula, it is prudent to allow several months to elapse without dilatation so as to watch for a possible partial recurrence. We have noticed this several times, but never to a serious degree, as dilatation for some days, with or without incision, sufficed to put an end to it. We therefore recommend that at least one winter should be allowed to pass before closing the aperture.

We have tried the method of closure recommended by Killian : Two vertical and lateral incisions some centimetres from the median line, a bilateral median incision along the edges of the fistula, and freshening of the edges at this level, except near the aperture for the cannula, subcutaneous separation of each flap, like a bridge, the introduction of Killian's rubber drainage-tube, suture in the middle line in two stages, of which the deeper is to be with catgut.

We tried this method in one of our cases and obtained a partial success, as the flap only partly took. The drainage-tube became plugged several times, once completely so. Killian's method is evidently very ingenious, but in case of emergency requiring removal of the tube the flap, which already has a tendency to unite badly, is dragged upon.

If a small tracheal aperture has been maintained for safety we can introduce a small cannula. In practice we use no drainage-tube and perform a total autoplasmic operation. If the fistula is small, freshening the edges round the orifice as for an old tracheotomy wound is sufficient. If the fistula is large, that is, of two centimetres or less, we prefer the operations of Berger and Glück. A small lateral flap from one side is turned over and covered by a large flap from the other side. This plan succeeded well in two of our cases.

These plastic operations should be large and carefully performed with complete removal of the epidermis. The plastic operation often succeeds only partially so that several operations are required. We recommend local in preference to general anaesthesia whenever it is possible.

When the fissure is very small we have tried applications of

silver nitrate, of the galvano-cautery and freshening by scraping. These methods have only given good results for closing punctiform fissures persisting at the angle of a flap.

ROYAL SOCIETY OF MEDICINE—OTOLOGICAL SECTION.

*Meeting at Edinburgh, Saturday, June 27, 1908, at 10 a.m., in the Ear and Throat
Department of the Royal Infirmary.*

President, DR. PETER McBRIDE, in the Chair.

Abstract of Proceedings.

The following were ballotted for and elected as members :

GEORGE NIXON BIGGS, M.B., B.S.Durh. Univ.

JOHN ARNOLD JONES, M.B., Ch.B.Victoria, F.R.C.S.Ed.

KNOWLES RENSHAW, M.D., B.C.Cambridge.

Numerous cases and specimens were examined.

The following cases were then discussed :

MIDDLE-EAR SUPPURATION ; PHLEBITIS OF LATERAL SINUS ; CEREBELLAR ABSCESS.

BY DR. McBRIDE.

Patient, male, aged twenty-three. First seen October 14, 1907, with Dr. George Hunter, who had treated him between the ages of one and seven for right-sided ear discharge, and had then removed pieces of lower jaw and temporal bone. The left ear had discharged for two or three years and had been treated by syringing. Pain came on four days before his visit to me. On examination the anriale was projecting, but there was no great tenderness on pressure, excepting in front of the tragus. Pulse 84; temperature normal. A mastoid operation was recommended, but two days later a good deal of offensive pus came away, and the patient absolutely refused interference as pain had ceased. The meatus contained granulations and exposed bone was felt. The right ear was deaf and the left almost entirely so. Owing to the patient's

attitude no further examination was made at this time, and the case was not seen again until January 14, 1908. The history then showed absence of pain, but giddiness with rotation referred to surrounding objects for the previous fortnight. Vomiting had occurred a week earlier, and there was nystagmus on looking to the right. The meatus was contracted, but there was no mastoid tenderness. The tuning-fork and other tests pointed to involvement of the middle ear rather than the labyrinth.

The patient now consented to operation.

Dr. McBride performed a radical mastoid operation on January 16, closing the posterior wound and using Brühl's plastic. After the operation the temperature showed slight evening rises for five days (up to 101° F.), was rather subnormal on the 22nd and 23rd; on the evening of the 24th it was 99° , on the 25th 100° , on the 26th 103° , and on the 27th 104° . There were no rigors, nor was there any leucocytosis. After this it fell, but four-hourly charts showed marked fluctuations. There were no changes in the discs. It was rather difficult to exclude influenza. The pulse rarely exceeded 100. On February 5 he exposed the lateral sinus and turned out a large clot, getting a flow of blood both from above and below. The jugular vein was not ligatured. On the following day the temperature again rose to 104° F., but on the 7th the highest point reached was 102.4° . Next day it did not exceed 100° . After this it rarely rose above 99° , and on the average was subnormal. Pulse from 78 to 90.

The patient during this period seemed rather inclined to sleep, and on February 16 there was vomiting and stupor. On the 17th this was more marked. There was nystagmus on looking to the left. Drs. McBride and Hunter considered another operation required, but as they had already operated twice it would be better to give the relatives an opportunity of calling in a surgeon if they desired it. Of this they availed themselves, and it was suggested that Mr. Dowden should be summoned, and, if he agreed with their opinion, should explore the cerebellum, and, failing pus there, the temporo-sphenoidal lobe. Mr. Dowden accordingly operated on those lines on February 17, but exploratory puncture failed to discover pus in either situation. Pressure, however, was relieved and the patient improved, the pulse rising from 78 to 110 and the stupor passing off. After a few days it was seen that pus seemed to come up from below along the track of the sinus, and it was therefore observed that as this pus increased the patient was better, but when it diminished he became drowsy. The pulse again

became slower, and on February 28 stupor again set in. A further operation was therefore suggested, and on March 1 the already large opening in the skull was enlarged downwards. In spite of suction and probing, however, we could not find the track of the pus. This operation was again followed by relief, and on March 7 the abscess cavity, containing about half an ounce of pus in the lateral lobe of the cerebellum, was found, evacuated, and drained by Mr. Dowden. Since that time the patient has made an uninterrupted recovery.

PATIENT OPERATED UPON FOR SIGMOID SINUS THROMBOSIS.

BY DR. A. LOGAN TURNER.

E. D——, aged seventeen, admitted under the care of Dr. G. A. Gibson with high temperature and pains in the back and shoulders, her condition suggesting influenza. She gave a history of having had a boil in the right external auditory meatus, which had been incised two or three days before admission. On day following admission she had a severe rigor, and this was repeated at intervals. She did not complain of any localising symptoms, but the history of the boil caused attention to be drawn to the right ear. Ear examined by Dr. Turner on December 7. No mastoid tenderness; no swelling; R.T.M. normal. Lumbar puncture negative; leucocytosis 16,800. Rigors continued. December 9: Ear again examined; mastoid tenderness now present; no cedema; slight bulging of posterior superior quadrant of membrane; hearing defective. Discs normal; leucocytosis 16,800.

Operation on same day. Paracentesis of T.M.; drop of pus evacuated; pure culture of *Staphylococcus pyogenes aureus*; mastoid cells contained no pus; bone not specially inflamed; sigmoid sinus pressed backwards with probe in order to gain access to antrum; a little pus escaped from antrum. Sinus wall exposed for one and a half inches; wall did not look unhealthy. Sinus incised; dark clot filled lumen; right internal jugular vein ligatured. Large clot removed from sinus; pure culture of *Staphylococcus pyogenes aureus* obtained from it. On account of recent character of case the complete mastoid operation was not performed. This, however, was found necessary some months later as a fistulous opening discharging pus persisted over the mastoid, and discharge continued from the middle ear.

PATIENT AFTER OPERATION FOR LEFT TEMPORO-SPHENOIDAL ABSCESS
OCCURRING IN THE COURSE OF A RECENT MIDDLE-EAR SUPPURA-
TION.

BY DR. A. LOGAN TURNER.

A. O—, aged thirty-six, had acute inflammation of the left middle ear in July, 1907. There was no history of any previous ear affection. On October 13, 1907, patient was examined; temperature 101° F., pulse 80. Great pain in left ear and on left side of head; tongue dry and brown; mastoid tender; T.M. bulging above and behind; muco-purulent discharge; she had been vomiting; could answer all questions when spoken to. Mastoid operation performed. Marked improvement in patient's condition. October 20, temperature fell to 97° and 96° F., pulse to 54 and 44; headache again troubled her; becoming drowsy and dazed; no changes in either fundus; no abnormal pupil phenomena; no ocular paralysis; loss of the power of naming objects. Leucocytosis 13,000. Polymorphonuclear cells 88 per cent. Large abscess evacuated from left temporo-sphenoidal lobe through roof of antrum. *Streptococcus pyogenes* and *Streptococcus pyogenes aureus* in brain abscess.

MACROSCOPIC AND MICROSCOPIC PREPARATIONS FROM A CASE OF
RIGHT TEMPORO-SPHENOIDAL ABSCESS AND LEFT SIGMOID SINUS
THROMBOSIS.

BY DR. A. LOGAN TURNER AND MR. HENRY WADE.

R. M—, aged nineteen, had suffered for a number of years from bilateral middle-ear suppuration. In 1900 a right temporo-sphenoidal abscess was successfully drained by Mr. J. M. Cotterill. In March, 1907, Dr. Turner performed a radical mastoid operation upon the left side, ligatured the left internal jugular vein, and removed a thrombus from the sigmoid sinus. A pure culture of *Proteus vulgaris* was obtained both from the mastoid abscess and from the clot in the sinus. The clot in the jugular vein yielded no growth.

The patient was re-admitted in October, 1907, showing signs of considerable emaciation; inability to recognise his friends; he was unable to walk without support, having a marked tendency to fall to the right. There was nystagmus of both eyes when rotated to the right, and weakness of the left external rectus muscle. There

was considerable tremor of the left arm in voluntary movement; marked exaggeration of both knee-jerks and ankle clonus. No Babinski. Dynamometer, right hand 15, left hand 25. Deafness was so marked that it was impossible to carry out satisfactory tuning-fork tests. There was a distinct tender area on pressure over the anterior and upper part of the left side of the cerebellum. Increasing drowsiness; temperature 97° to 96° F., pulse 64. Leucocytosis 17,600. Polymorphonuclear cells 80 per cent. After consultation with Dr. Edwin Bramwell the left cerebellar lobe was explored, but no abscess was found. Death on the fourth day following the operation. No abscess found *post mortem*.

A CASE OF INFECTION OF THE LATERAL SINUS; PNEUMONIA AND PERICARDITIS; LIGATURE OF THE JUGULAR VEIN; COMPLETE RECOVERY.

By DR. W. PERMEWAN.

Boy, aged ten. Admitted with history of acute ear disease of five days' duration. Temperature had varied from normal to 105° F., but, according to doctor, no rigors. On admission temperature 103° F., ear suppurating, tenderness but no swelling behind mastoid. The antrum and mastoid cells opened, and contained pus; mastoid cleared out. Next day rigor; temperature 105.5° F. Lateral sinus explored; sinus thrombosed and contained pus. Sinus wall freely opened, and thrombus cleared out above and below till bleeding occurred, then plugged. Internal jugular vein then tied, and one inch excised. Next day pericardial friction heard, and a dull patch on the right lung with pneumonia breath-sounds. Anti-streptococcic serum administered, and repeated several times. Recovery slow but complete; patient remained well since.

MR. A. L. WHITEHEAD asked whether in Dr. McBride's case the cerebellum was explored through a separate opening posterior to the lateral sinus, or if the mastoid opening was followed backwards so as to expose the cerebellum. Were the leucocyte counts in Dr. Logan Turner's cases continued after the operations until convalescence, and, if so, what were the results? In the cases of sigmoid sinus thrombosis, was the sinus exposed until a healthy portion was reached before the wall was incised? If this were done, there was less risk of pushing back a portion of infected clot by the gauze plug used to arrest the hemorrhage, and the sinus could be more deliberately laid open and the inner wall inspected.

DR. THOMAS BARR asked, with regard to Dr. McBride's case, how the abscess was ultimately found in the cerebellum. There was another interesting point in connection with that case, viz. the symptom of nystagmus. He would like to know if the nystagmus became more marked as the disease advanced, or the contrary. He noticed that at

first the nystagmus was on the right side and later on the left alone. Neumann and Bárány alleged that one could differentiate cerebellar suppuration from labyrinthine by the presence and behaviour of nystagmus. In the former the nystagmus, slight at first, became worse and worse as the disease advanced, whereas, in the case of labyrinthine suppuration, the nystagmus was more pronounced at first but gradually became less marked till it disappeared. He asked whether the former course was noticed in this case. The non-existence of rigors in the case was noteworthy. This case confirmed what he had occasionally seen, that rigors might be absent, the sinus condition being indicated simply by marked fluctuations of temperature. These exceptional cases were a warning that they must not wait for rigors before operating.

DR. MILLIGAN said it would be interesting to hear from the exhibitors of these various cases their reasons for tying the jugular vein or for leaving it alone. This point raised the question as to the class of case in which the jugular vein should be tied, and those cases in which it was sufficient merely to clear out the clot in the lateral sinus and leave the vein unligatured. It had always seemed to him that in those cases where there were no definite evidences of phlebitis extending down the neck, as indicated by tenderness, enlargement of glands, etc., one could obtain very good results by simply clearing out the clot and leaving the vein alone. In many cases, after opening the sinus no macroscopic evidence of infection of its coats was evident. On the other hand, where there was evidence that the coats were infected, and that the process was extending downwards towards the neck, then, he thought, there could be no doubt that the internal jugular vein should be tied. He raised this point because he noticed in Dr. Logan Turner's case that he said: "Sinus wall exposed for an inch and a half; wall did not look unhealthy. Sinus incised; dark clot filled lumen; right internal jugular vein was ligatured." He thought one might reasonably ask Dr. Logan Turner why he did ligature the jugular vein in this particular case.

MR. BALLANCE said it seemed to him that much was gained by modern methods of examination. He referred to the examination of the blood and of the cerebro-spinal fluid, and the discovery of the organism producing the suppuration. Recently he had a very severe case of septicæmia, with symptoms also of meningitis, and in this case the vaccine treatment appeared to be most valuable. With regard to the question of ligature of the jugular vein in lateral sinus pyæmia or septicæmia, he thought the decision must depend upon whether the infection was a local or a spreading one.

MR. HUGH E. JONES said he would like to know whether, in the experience of those present, the plugging of the sinus, either by pathological processes or by operation, encouraged the formation of a hernia after the evacuation of the cerebellar abscess. He would also like to have some advice in regard to the treatment of hernia. In a case of his everything had been tried except removal of the hernia: enlargement of the opening in bone and dura, the making of a counter-opening, and search for a second abscess, painting the hernia with formalin and glycerine, etc. In regard to the question of tying the internal jugular vein, there was one thing that struck him in Dr. Logan Turner's notes. He said that no micro-organisms were found in the clot from the jugular vein. Many surgeons claimed to have found pathogenic organisms, not only in the clot but in the apparently healthy walls of the vein, and consequently practised the excision of the *whole* vein. It had always seemed to him that this radical proceeding was unnecessary, even where

the upper part of the vein was filled with breaking-down clot. It seemed sufficient to place the ligature below the clot and to excise the portion of vein above it, or to bring the upper part of the vein out of the wound and drain through it.

Dr. KERR LOVE had nearly always been able to make up his mind as to what course he should follow with regard to treatment, apart altogether from bacteriology. There was a case recently in which he (Dr. Love) operated on the antrum, and meningitis followed the operation. No treatment of any kind specially directed to the specific affection was adopted, and the girl made an excellent recovery. The diagnosis of meningitis was confirmed by an examination of the cerebro-spinal fluid, but he felt that a careful study of the clinical symptoms gave as clear a guide as any study of the bacteriology of the case.

Mr. SYDNEY SCOTT asked Dr. Logan Turner and Mr. Wade, with reference to their case, what was the cause of death. The symptoms with which the patient was readmitted in the autumn suggested to his mind that he was suffering from intra-labyrinthine disease on the left side. As no cause for death was mentioned, and there appeared to have been increased intra-cranial pressure, he would also like to ask what was the condition of the ventricles of the brain after death, and whether they were distended with fluid or normal.

Dr. McBRIDE, in reply, said that the cerebellum was explored simply by an opening made by extending that by which the sinus was exposed. The abscess was eventually found by Mr. Dowden. Pus was seen welling up along the lateral sinus from below, and the fourth operation was performed with a view to tracing it and its source. Eventually Mr. Dowden put a plug over the lower part, and then found a small orifice in the dura, which he enlarged. With regard to the question of nystagmus, his idea as to Neumann's views was that he believed persistent nystagmus on looking towards the diseased side was suggestive of cerebellar abscess, while the opposite condition was more commonly found in labyrinthine suppuration. He might add that in his case there was no hernia.

Dr. LOGAN TURNER, in reply, said that, as far as the diagnosis was concerned between sinus thrombosis and a localised brain abscess, a much higher leucocyte count was found in the sinus thrombosis cases than in the cases of localised brain abscess. The leucocyte count was of value in connection with the prognosis of the case after operation; that was to say, allowing three or four days to elapse, in order to get over the effect of the anæsthetic, which again raised the leucocytosis, one found that daily, or every other day, the leucocyte count showed a gradual reduction to the normal. On the other hand, when the patient was not doing well, it was generally found that there was again a very considerable increase in the number of leucocytes. The second point raised was the question of ligation of the internal jugular vein in cases of sigmoid sinus thrombosis. Having exposed the sinus and come to the conclusion, either before or after opening it, that there was a clot, one at once ligatured the jugular. His reason for doing so was simply this: that he wanted to place a barrier in the blood-stream before disturbing the septic foci which were present in the sinus. Moreover, one did not know how far the clot might have extended down, and by exposing the vein in the neck one was able to learn this. The third point, which had not been raised in the discussion, but which he wanted to refer to, was the diagnostic value of the symptom of the loss of the power of naming objects in lesions of the left temporo-sphenoidal lobe.

He had now had six cases, three of left temporal lobe abscess, one of large subdural abscess on the left side, and one of very extensive left-sided extra-dural abscess, and in all of them there was a loss of the power of naming objects. If, in a case of suppuration of the left middle ear, there was suspected intra-cranial abscess, the absence of the above symptom would be in favour of the pus being situated in the cerebellum. In a case at present in the ward, the cerebellum was first successfully explored and an abscess found, because this symptom was absent.

Mr. HENRY WADE, in reply, said that the abscess cavity had been replaced by what might be called a cyst. They found the brain and its membranes adhering by cicatricial tissue to the trephine opening, and the abscess membrane was now replaced by organised cicatricial tissue. This cyst passed downwards for quite a considerable distance into the temporo-sphenoidal lobe, and was seen to be separated by only a delicate layer of brain tissue from the lateral ventricle. The next point was that in March, 1907, he was operated upon, and the left internal jugular vein ligatured. They now found, of course, the usual change: the vessel was completely thrombosed for some distance. But there were certain rather interesting points. The first was that at the site of the ligature one could make out that although it was, roughly, nine months from the operation to the ultimate death of the patient, from another cause, there was present a fragment of the catgut used to ligature the vessel. The sigmoid sinus was also completely thrombosed, and the lateral sinus showed a similar change. Its lumen was, however, not completely obliterated, and was lined by organising granulation tissue. The auditory nerves on both sides were incorporated in masses of new growth, having the structure of a highly cellular fibroma. The cause of death was found to be explained by the presence of a small abscess in the pons.

Dr. W. PERMEWAN, in reply, said that he had almost always found that tying the jugular vein produced a good result. It had been said that the vein should not be tied unless there was phlebitis spreading into the neck. That was impossible to decide accurately; the alleged symptoms—pain and tenderness—were of no certain import; and, having seen an invariable improvement after ligature, he believed the sound practice was to tie the vein in every case. The alleged dangers of doing so were, in his judgment, wholly imaginary.

PATIENT AFTER THE MASTOID OPERATION WITH PRESERVATION OF THE TYMPANIC MEMBRANE AND OSSICLES.

BY DR. A. LOGAN TURNER.

J. C—, aged thirty-four, had discharge from the left ear since childhood. During the last few years had suffered from occasional attacks of severe pain in the ear; headaches. On examination mastoid tenderness; foetid discharge; Shrapnell membrane perforation. Hearing: watch $\frac{2}{50}$ inches; raised whisper 15 feet; voice 21 feet.

Operation February 28, 1908.—Bridge accidentally fractured and removed; no displacement of incus; cessation of discharge,

pain, and headaches; healing of perforation. Hearing varies a little, but has been as good as before operation.

PATIENT AFTER THE MASTOID OPERATION WITH PRESERVATION OF THE
TYMPANIC MEMBRANE AND OSSICLES.

BY DR. A. LOGAN TURNER.

J.P.—, aged twenty-three. Discharge from left ear for twenty years following measles. Suffered occasionally from headaches; discharge resisted careful meatal treatment. Perforation in posterior segment of membrane; discharge fœtid. Cytology: pus-cells scanty; polymorphonuclear cells; large squames; a few myelocytes; streptococci. Hearing: watch 4 inches; whisper 4 feet; low voice 18 feet. B.C. > A.C. Lateralised to left ear.

Operation October, 1907.—Bridge broken and removed; no displacement of incus. Cessation of discharge; healing of perforation. Hearing sometimes better than before operation.

AN UNUSUAL SEQUEL TO THE RADICAL MASTOID OPERATION.

BY DR. W. G. PORTER.

The patient, a boy, aged sixteen, was under Dr. McBride's observation for eight years suffering from an intermittent attic suppuration (perforation in Shrapnell's membrane). Gradual narrowing of the meatus and attacks of pain during the last year necessitated operation (Dr. McBride, June 27, 1907), although the hearing was excellent—watch $\frac{1\frac{6}{10}}$, ordinary whisper 18 feet. The radical mastoid operation had to be performed, because the greater part of the disease—cholesteatoma—lay in the attic and tympanum; the outer wall of the attic was thoroughly removed, and the spur well flattened. During healing abundant granulations formed (no packing was used after first week), and the cavity became so stenosed that a second operation was required (Dr. Porter, August 30, 1907); a distinct ledge of bone was then found at the site of the outer wall of the attic leading to a recess in the retiring angle of which the bone was carious. This was all removed, and a large meatus was cut. There was again very marked contraction, but healing was complete on October 8, hearing watch $\frac{8}{30}$, whisper 18 feet. The case presents the following points of interest:

1st. In spite of the good hearing the pathological condition

present necessitated a complete mastoid operation; a modified operation was inadmissible if anything like all the disease were to be removed.

2nd. There was an unusual and rapid new formation of bone. Was this an attempt at regeneration of bone?

3rd. The excellent hearing that was retained would appear to show that the functional result depends more on the presence of an intact stapes than on the retention of the ossicular chain.

4th. Packing in this case merely stimulated the growth of granulations.

NOTES ON PARTIAL GRAFTING, WITH THE AID OF LOCAL ANÆSTHESIA,
IN THE AFTER-TREATMENT OF THE RADICAL MASTOID OPERATION.

BY DR. J. STODDART BARR.

The treatment by packing, which has been so long practised by operators, when carried out with scrupulous care by the operator himself, yields, on the whole, good results. There is no doubt, however, that the time and trouble required forms a burden grievous to be borne, and in the case of hospital patients it cannot be borne by the surgeon himself, and usually has to be transferred to others. Naturally, therefore, the operator is eager for some other way less exacting upon his time and patience which would yield equally good results.

By a combination of limited packing and partial grafting, without general anæsthesia and without re-opening the post-auditory wound, he has been able to considerably shorten the healing process, and dispense to a great extent with the troublesome daily dressings. My practice is to insert a graft through the widened meatus some time during the second week after the radical mastoid operation. The technique he adopts is as follows: The graft is cut from the left forearm or thigh under local anæsthesia induced in the following manner: A warm, sterilised, normal saline solution, to which has been added Parke Davis and Co.'s codrenin in the proportion of 1 ampulla (10 minims) to 6 drachms of the normal saline solution, is injected under the skin from which the graft is to be taken. An ordinary hypodermic syringe with a needle at least two inches long is required, and several syringefuls of the fluid are injected in various directions before withdrawing the needle.

In this way it is quite easy to anæsthetise three to four square inches of skin, sufficient to permit of the removal painlessly of a

large Thiersch graft. The graft, which must be thin to transparency, is then manipulated over the end of a suitably bent glass tube connected at the other end by rubber tubing having a glass mouth-piece, or a small rubber bag. The graft at the end of the tube (somewhat like a closed umbrella) is passed through a wide speculum to the inner wall of the tympanum, when by blowing air through the tube, the graft is spread out over the inner surfaces, including the tympanic walls, the aditus, and the antrum. This may be compared to the opening of the umbrella. Or, one graft may be used for the tympanum and a second for the antrum. Before introducing the grafts the surfaces must be most carefully dried, and after their introduction xeroform powder is blown in so as to cover the grafts with a fine layer; afterwards small gauze tampons are carefully inserted into all the recesses. In a week the gauze packing can be removed, followed by gentle syringing with saline solution, drying, and a fresh insufflation of xeroform. In the course of a few days the spirit treatment may be commenced. By this modified grafting operation and the limited use of packing there is little doubt that the healing process is materially shortened.

Mr. SYME thought it would be wise always to remove practically the whole posterior meatal wall, although it might be well to start with the intention of preserving the bridge, and so make one anxious not to disturb the incus, and then finally to remove the bridge. By so doing the condition of the tympanum was better seen and its treatment could be more carefully conducted.

Mr. A. L. WHITEHEAD thought that there might be some advantage in trying to preserve the bridge until the last stage of the operation, so as to avoid injury to the ossicles. It should, however, be removed at the final stage, otherwise an area would remain from which diseased tissue could not be thoroughly removed.

Dr. KERR LOVE said that the first point to consider was whether it was wise to do all one could to save the ossicles in a case of middle-ear suppuration. His usual advice in such cases was to operate radically except in the case of a private patient. In a hospital patient it was usually foolish to try to save the ossicles where the suppuration was chronic. In nearly all of those cases coming before them in hospital the destruction had been so extensive that the attempt to save the ossicles would result in the radical operation having to be done later on. Now and again, in a private case, on the other hand, where treatment had been fairly well carried out for many years, the destruction of the ossicles had not been so great, but even there the result was not at all assured, and very often one had to perform the radical operation in the end, so that he said it was seldom wise to attempt to save the ossicles in middle-ear suppuration. He had cases in which, when the ossicles were removed, the results with regard to hearing were quite as good as in the case operated upon by Dr. Logan Turner. He had practically given up grafting in the ear. If he had a large enough cavity, that was to say

a cavity which did not become divided into, on the one hand, a middle-ear cavity, and, on the other, a false antrum, a bridge growing between, healing went on well enough without grafting.

Mr. C. A. BALLANCE said that in the radical mastoid operation the ossicles should be left when they were not diseased. He knew this had long been the practice of Jansen and others. The bridge ought always to be removed, because otherwise disease might remain unremoved behind it or might recur behind it. He always grafted. He had done many hundreds of operations and had always grafted the raw bone surface.

Dr. MILLIGAN now practically invariably removed the bridge, but, so far as was possible, preserved the ossicular chain. Dr. Barr's method of grafting was not only novel but distinctly ingenious. With regard to grafting large cavities after the complete post-aural operation, his practice was to employ grafts according to Ballance's method. Not only does grafting materially shorten the process of after-treatment, but, so far as his experience went, he could not say that it had in any way caused a deterioration of hearing.

Dr. THOMAS BARR said that this more limited method of grafting very decidedly shortened the after-treatment. It was important to make good wide cavities, removing as far down as possible the posterior wall of the osseous meatus. He saw one of his son's cases a few days ago, three weeks and a half after the radical mastoid operation and two weeks after the partial grafting. The cavities were nicely lined with dry, pale pink epithelium, with exception of the outer part of the post-meatal cavity, to which none of the graft had been applied; here there was some granulation tissue. It was interesting to see how the graft applied itself to the surface under the impact of the blowing of air through the glass tube. He could not say he had found the simple syringing of the ear twice daily with the instillation of spirit very satisfactory in many cases without packing. His experience was that, owing to the formation of exuberant granulation tissue in the cavities, especially at the aditus, with coalescence, adhesions, and pus-yielding recesses, one had to resort afterwards to curetting, cauterisation, and a measure of packing. Some of them, however, no doubt did well without packing.

Dr. LOGAN TURNER said he had nothing to add but to congratulate Dr. Love on the results of the hearing after the complete mastoid operation if they were as good as had been obtained in the patient shown in the next room. The discharge in her case had lasted for twenty years, so that she had a very chronic condition.

Dr. PORTER, in reply, said that with regard to the skin grafting he thought there was a distinct alternative to this method of treatment and to packing. He referred to treating the cavity without any packing after the first week. Dr. McBride and himself had treated the mastoid cavity for eighteen months now after this method, and on the whole had been satisfied with the results. Of course one did not get success in every case, but no one could claim uniform success by any one method. In the earlier stages of healing the cavity certainly contracted very much, but some six months later the cavity, which at first seemed very narrow, had usually expanded, adhesions began to disappear, and the cavity assumed the typical kidney shape.

Dr. STODDART BARR said the plan of treating the cavity made at the mastoid operation by syringing, followed by spirit instillations, had been far from uniformly successful. He now, almost as a routine, carried out the grafting operation just described, and found that, even if the

graft adhered only over the inner wall of the aditus and over the bridge, the spirit treatment could then be followed without any risk of the cavities becoming unduly obliterated.

A SYRINGE FOR USE AFTER THE RADICAL POST-AURAL OPERATION.

BY DR. URBAN PRITCHARD.

A PATIENT AFTER VESTIBULOTOMY (RIGHT EAR).

BY DR. J. S. FRASER.

W. B—, male, aged eleven, double otorrhœa after measles eight years ago. Six months ago tonsils and adenoids were removed, and two days later patient developed scarlet fever.

Examination on Admission.—Right side: large aural polypus and profuse purulent discharge; mastoid tenderness. Left side: granulations from posterior wall of bony meatus; no mastoid tenderness. Weber to right: Rinne negative, both ears; Schwabach lengthened. Watch, left $\frac{1}{10}$; right contact. Whisper, left 18 in.; conversation, voice at 9 ft. Right ear: raised voice at 2 in. Patient cannot hear C2048 at all by right ear.

Static Organ.—Boy can stand with feet together and eyes shut, but not on either foot alone when eyes are shut; worse on right than on left side; on attempting to walk in a straight line with eyes closed he deviates markedly to right. Slight nystagmus on movement of eyes to left; marked nystagmus on syringing right ear with hot and cold lotion.

Operation (April 22, 1908).—Right antrum large, contained granulations which protruded through posterior wall of bony meatus; small amount of yellow, curdy pus in antrum. Bacteriology: bacillus belonging to *coli* group, producing gas and acid in glucose and lactose media.

Radical Mastoid Operation performed.—Mallens removed; incus not seen; the external semi-circular canal prominence was rough, and red in colour; it was opened, and the canal followed towards the ampulla, where an opening was made into the vestibule; no pus seen. The region of the oval window was found to be covered with small red granulations, and the stapes was absent; the vestibule was opened in this region by enlarging the oval window downwards and forwards; only clear fluid escaped in small quantity. Plastic on Körner's method; posterior wound closed with clips;

granulations in left ear curetted. Duration one and a half hours.

Progress.—Vomiting continued for two days after operation; on fourth day wound cavity was dressed, but bleeding obscured the view; incision healed by first intention, but the boy was very noisy and restless during dressings, so that packing was rendered difficult; a fortnight after the operation packing was entirely discarded. One month after operation there is still slight nystagmus on rotation of eyes to left, and staggering when he stands on left leg with eyes shut, but both conditions less marked than before operation; patient giddy and inclined to vomit for one day after these tests had been applied.

NOTES OF A CASE OF ABLATION OF BOTH VESTIBULES FOR THE RELIEF OF VERTIGO.

BY DR. GEORGE GIBSON AND MR. RICHARD LAKE.

The case was originally shown before the Otological Society of Great Britain on March 6, 1905.

The patient, a female, was then aged twenty-six. She had had scarlet fever, rheumatic fever, and measles as a child. Her deafness commenced at the age of nineteen, though she had previous ear trouble, vertigo being first noticed about this time.

When examined she was completely deaf to the voice, but was able to hear C¹ and C² when struck very hard.

On January 2, 1905, the whole of the inner ear on the right-hand side was ablated. Some few months after this operation vertigo on the left side became so severe that the left ear was operated upon on January 17, 1906, and the vestibule ablated.

There is nothing of note to report about the immediate after-result of this operation, and although at first one had been inclined to believe that the tinnitus had not been relieved by the first operation, this was not so, as the only noises the patient now hears are that occasionally she imagines that she hears voices calling her at night.

Before the operation on the second side was undertaken the advice of Dr. Risien Russell was sought, in order to obtain a definite opinion as to the probable effects of destroying the vestibular nerve on both sides. The form of operation adopted was fully described in the *Lancet* of January 6, 1906, so there is

no need to trouble the members of the Section with any references to its technique.

Notes by Dr. G. Gibson's house-physician, February, 1906 :

Nervous System.—Subjective Phenomena.—The patient now complains of noises in the head only, which are only occasional, and also of some frontal headache coming on at irregular periods. This is sometimes relieved by epistaxis. She only occasionally has severe attacks of pain in the back of the head, but these have not been so bad since the last operation. Deafness is the only other subjective symptom.

Objective Phenomena.—Cranial Nerves.—(1) Sense of smell very good. Can distinguish pleasant from bad odours quite easily. No difficulty since operation so far as the patient can tell.

(2) Sight has never been very good, but has not got any worse. Both discs appear normal. Some myopic astigmatism, roughly about 2 or 3 D., in / direction. Some black specks are seen on lens on ophthalmoscopic examination, when the pupil is dilated close to the margin of the pupil. Nothing is seen by oblique illumination. Both fields of vision are normal.

(3, 4, 6) All ocular movements are carried out at once, both eyes working well. There is no apparent weakness of any of the ocular muscles; no squint or diplopia. Well-marked nystagmus of a slow character is present.

(5) There is nothing noteworthy. Sensation over face, as far as can be made out, is quite normal; no vaso-motor or nutrition change.

(7) Right-sided facial paralysis. The whole right side of the face has lost expression, especially the forehead, where the wrinkles are lost on the affected side. The right palpebral fissure is smaller than the left. Mouth slightly drawn to the left. When the patient smiles the face is drawn to the left side. In frowning only the sound side is used. Blowing out the cheeks produces an escape of air on the affected side, but there appears to be a slight escape from the nose as well, indicating weakness of the palate. The right eye can be closed altogether, but not with the same force as the left. In fact all movements of the right face are greatly diminished.

Taste.—Patient to-night could not taste any of the solutions with either the sound or affected side. At times, while watching the right lower eyelid especially, a well-marked tremor has appeared, and one or two definite contractions of the orbicularis.

(8) Complete deafness on both sides. The patient cannot hear a watch applied to the ear on either side, nor can she appreciate

it if pressed on any part of her head. She can just make out a loud clap of the hands close to the ear, though not infallibly. All appertaining to co-ordination and equilibrium good. The patient walks wonderfully well, perfectly straight without staggering and faltering, and can stand with her feet together both with eyes open and shut.

(9, 10) No weakness of these so far as can be ascertained.

(11) Also seems quite sound. Both shoulders can be shrugged quite well, and patient says she has always been able to carry out this movement.

(12) When the tongue is protruded it is thrust out towards the left side, and there is considerable difficulty in getting it over to the right side at all. When examined in the mouth there is a scar on the right side, about anterior two thirds, which diminishes the total size of this side. The patient cannot remember anything happening to cause this. The right side is much more tremulous than the left.

Common sensation appears to be very acute over all the limbs and trunk. Nothing abnormal in sensibility to touch, heat and cold, and pain. Some slight discharge from left ear.

Muscular sense normal.

Pupils equal, quite round and regular, and react to light and accommodation. All organic reflexes are carried out normally. No difficulty in swallowing or breathing.

Plantar very lively indeed, but of ordinary flexor type; no Babinski. Abdominal reflexes also normal. Ankle-jerks present Knee-jerks, with markedly increased clonus, obtained in right one. No definite ankle-clonus. Supinator, triceps, and biceps jerks all markedly present on both arms, somewhat exaggerated on left side, and at one time the biceps went into clonus for a short time.

Voluntary movements can all be carried out quite well except as mentioned alone in face. Co-ordination, gait, etc., perfect. Electrical reactions of face give no reaction of degeneration.

No evidence of any vaso-motor change over any part of the body, such as face. Intelligence, attention, both very good; some little difficulty in remembering details at times. Speech somewhat indistinct, patient slurs words at times. Is quick at picking up spoken words from the movements of the lips, and these are answered well.

Note by Dr. George Gibson :

Professor Schafer was kind enough to associate himself with me in making some observations in regard to the patient's powers of

equilibration, as well as on the strength of her muscles. When placed upon a revolving chair, by means of which she could rotate accurately round her own vertical axis, we found that she was absolutely unable to detect even very considerable degrees of rotation. Unless the chair was turned round so quickly as to give a distinct sense of resistance to the skin, she was not aware that she was being turned round at all. We tested this point upon ourselves in order to have some comparison, and found that the very slightest rotation was detected by each of us. We had the advantage, when making these observations, of the supervision of Professor Crum Brown, whose researches upon the semi-circular canals are so widely known.

Professor Schafer further tested the strength of the patient's upper extremities by means of the ergograph. The most careful observations failed to detect any departure from a normal standard, and there was absolutely no difference between the two sides.

It may be of interest to add that a youthful patient, who was lately in Ward 30 of the Royal Infirmary under my care, suffering, amongst other affections, from congenital deafness due to inherited specific infection, provided an interesting subject for control observations. Through the kindness of Professor Schafer, Mr. Ednie, of the Physiological Department, assisted me in testing this patient with the rotating chair. It was found that, even when turned round with considerable velocity, she was quite unable to appreciate the fact of rotation.

Note by Mr. Richard Lake :

I will only deal briefly with my experience of this operation for the relief of vertigo. I brought forward the first recorded case in March, 1906, before the Otological Society of Great Britain. Since then I have operated for vertigo in Ménière's disease, unconnected with suppuration, five times—six in all. These cases were all operated on for the relief of a condition which either caused agoraphobia or prevented the patient from earning his or her livelihood. In all complete relief has been afforded, in the first case for four, in the second, third, and fourth for periods of one to three years, in the last two, one under six months, and the other only for as many weeks. The one which was only done four months ago has, I understand, undergone another operation for the relief of noises, which, as they did not appear to me to be of aural origin, I much preferred not to attempt to relieve.

Dr. MILLIGAN said that after reading the notes of Dr. Fraser's case it appeared to him that there was not sufficient reason for the labyrinth

to have been opened. The lesion appeared to have been superficial and limited to the bony capsule of the canal, and he thought that under such circumstances all that was necessary was to perform the complete post-aural operation and to watch the subsequent development of events.

Dr. ALBERT GRAY said that Ewald, some years ago, put forward a theory to the effect that the vestibule and canals were responsible for the tone of the skeletal muscles, and he described an extraordinary number of experiments to support that view. He noticed, from the physiological examination of this patient after operation, that the case did not lend any support to Ewald's theory at all. The case rather corroborated the view that these structures were concerned in giving information as to the position of the head, and, to a certain extent, the position of the body after rotation. His own investigations of the comparative anatomy of the subject also seemed to give evidence in support of the correctness of Crum Brown's theory, for in animals that have their cervical vertebrae ankylosed, such as the Cetacea, the movements of the head were extremely limited, and in these animals the semi-circular canals and vestibule had undergone extraordinary retrograde changes, and the nerve supply was very much reduced.

Mr. SYDNEY SCOTT had examined a considerable number of cases for nystagmus, and it had now become a matter of routine to observe the exact forms of nystagmus met with in aural diseases. He would suggest that in descriptions of cases in which the term "nystagmus" was used they should pay special attention to the form and direction of the movements constituting nystagmus. He would like to ask Dr. Fraser what was the direction of the rapid movement of the eyeballs in the nystagmus provoked by syringing the right ear of his patient before the operation with hot water, and whether the movement differed in direction after syringing with cold water. He had been able to bear out the principal observations of Bárány with regard to the effects of syringing with hot and cold water, supposing the outer wall of, for example, the *right* labyrinth was exposed by a defect in the tympanic membrane to the influence of heat and cold; when the labyrinth was normal a definite form of nystagmus could be produced. On syringing the ear with head erect, taking care not to exert increased pressure on the oval window, using water at 110° F., or, if there was no response, gradually increasing the temperature of the water to 112° or 115° F., or in some cases even to 118° F. (which was the limit of toleration), a certain form of nystagmus resulted. When the gaze was directed to the right, that is, the syringed side, the rapid rhythmic movement of the eyeballs was directed horizontally to the same side; this was often accompanied by a slight rotatory movement downwards. On fixation of the eyeballs to the extreme left the nystagmus absolutely disappeared, to return when the gaze was once more turned to the syringed side. There were some cases in which the nystagmus was very violent and was not arrested even in extreme deviation of the eyes to the opposite side, but the direction of the *rapid* movement was then always toward the side affected by heat. Cold water produced a different result. On syringing with water at 90° F., sometimes only after decreasing the temperature gradually to 80° or 70° F., or even 65° F., he had found that after an appreciable interval of time nystagmus, if present as the result of hot syringing and manifest during deviation of the eyes towards the syringed side, first ceased and then became replaced by nystagmus, which was manifest on deviation of the eyes towards the side opposite that which was syringed. The rapid movement of the eyeballs was towards the opposite side, and was either horizontal or rotatory when the

head was erect; that was to say, the nystagmus produced by cold was of the same type as that produced by heat, but the direction of deviation in which the nystagmus became manifest, as well as the direction of the *rapid* movement, was towards the opposite side. In gross lesions or destruction of the labyrinth he had failed to elicit nystagmus by either heat or cold.

Mr. HUNTER TOD asked what was really meant by "ablation" of the vestibule. Did some include in this category the simple opening of the vestibule by chiselling away a small fragment of the external semi-circular canal; or was it restricted to "ablation" in its true sense, meaning complete removal of the semi-circular canals and curettement of their openings into the vestibule? It was very important that in the description given of any such operation the actual extent of the operation should be clearly defined.

Dr. SYME said that this operative procedure was attended with a good deal of risk, and in the great majority of cases the condition of the labyrinth was one of congestion or of inflammation and not of actual septic infection, the symptoms disappearing after the performance of the radical mastoid operation. It was not unusual to find erosion of bone in the region of the external canal or of the inner tympanic wall, but with this was also frequently a protective formation of bone shutting off the cavities of the internal ear. Their practice should be to perform the radical mastoid operation, and, unless some very decided indication for opening up the internal ear, such as the escape of pus from a sinus, was found, to wait and watch the case carefully. If it was decided to proceed further the whole labyrinth should be laid open, but this, he thought, would be very rarely called for.

Mr. A. L. WHITEHEAD thought that in many cases of mastoid disease with a fistulous opening into the external semi-circular canal, uneventful and perfectly satisfactory healing occurred after the performance of the radical mastoid operation alone. In Dr. Fraser's case it might have been desirable to try first the simple mastoid operation before opening up the entire labyrinth.

Dr. KERR LOVE said that when one heard that in twenty or thirty hospital cases operation on the internal ear had been performed, and when one could not find in ordinary hospital practice cases corresponding to these, one suspected that the internal ear operation was being unnecessarily performed. On the other hand, cases occurred in which special interference with the canals was undoubtedly an advantage, but as a rule it was not necessary to obliterate the whole internal ear.

Dr. FRASER, in reply, said he had performed this operation on the symptoms. The patient was decidedly giddy and, with his eyes shut, could not stand upon either leg alone nor walk straight. There was no doubt that, in this case, there was interference with the balancing powers. It was possible that this patient would have got well if the radical mastoid operation had been performed and nothing further done; but he maintained that he had been justified by the result.

STEREOSCOPIC PHOTOGRAPHS ILLUSTRATING THE COMPARATIVE ANATOMY
OF THE LABYRINTH OF REPTILES, BIRDS, AND MAMMALS.

SHOWN BY DR. ALBERT A. GRAY.

NOTES OF A CASE OF OTITIC MENINGITIS, WITH HISTOLOGICAL SPECIMENS
(LANTERN SLIDES) OF THE LABYRINTH, DEMONSTRATING STREPTOCOCCI IN SITU.

BY MR. SYDNEY SCOTT.

Notes.—Primary streptococcal tonsillitis and pharyngitis, followed by acute otitis media, labyrinthitis, and lepto-meningitis.

Boy, aged three and half, admitted to the Evelina Hospital for Sick Children, under the care of Dr. Whipham, March 31, 1908.

History.—There had been diarrhoea and vomiting lasting one day a week previously, and difficulty in swallowing had been present for four days. No rash.

Condition on Admission.—Child looked very ill. Apathetic appearance. Temperature 102° F.; pulse 140; respirations 36. Fauces and uvula ulcerated and covered with slough.

Bacteriological examination by Dr. Leatham, Pathologist to the Hospital, showed predominance of long-chained Gram + (positive) cocci on swabs from throat.

Two Days after Admission.—The child was seized with general convulsions, followed by loss of consciousness. He remained more or less deeply unconscious from this time onwards. There was no paralysis.

Nine Days after Admission.—General condition unaltered. Slight purulent discharge was first noticed from the left ear.

Seventeen Days after Admission.—Mr. Scott saw the patient on account of the otorrhoea. He found the right ear normal. The fundus of the left external auditory meatus contained pus, and swollen mucosa which obscured the defect in the membrane. No superficial mastoid swelling. No facial paralysis. Very slight head retraction. Lumbar puncture showed excess of cerebro-spinal fluid, but no abnormal cells or organisms could be found after centrifugalisation. Leucocyte count 7000. The optic discs were normal. Slow, continuous wandering, conjugate movements of the eyeballs could be seen, but there was no spontaneous nystagmus. Knee-jerks equal. No ankle clonus. Plantar reflex—flexor response. Kernig's sign absent.

Operation.—I performed the radical operation the same day. The cavities of the middle ear and antrum contained inflamed mucosa, no pus. There was no extra-dural abscess. The outer wall of the labyrinth was normal in appearance; there was no erosion of the external semi-circular canal or promontory. The

stapes was intact in the fenestra ovalis. The mucosa lining the fossula rotunda and sinus tympani was greatly swollen. The posterior cranial fossa and the intra-dural space in front of the cerebellum were explored with a director, and much cerebro-spinal fluid escaped and continued to drain away.

Bacteriological examination of this fluid, collected during life, revealed Gram positive streptococci.

Result.—After the operation no improvement followed. The temperature rose to 108° F. Several general convulsive seizures preceded coma, and death two days afterwards.

The Post-mortem Examination.—Excess of turbid cerebro-spinal fluid was found within the lateral ventricles of the brain, and a little flaky exudate around the medulla and pons. In this fluid were found Gram positive streptococci, and very few polymorphonuclear cells. To the naked eye there was no other intra-cranial lesion, the right temporal bone appeared perfectly normal, and nothing abnormal was found bearing on the subject elsewhere in the body.

The *left* petrous bone was examined histologically, and the labyrinth found to be in a state of acute diffuse round-cell infiltration, and containing swarms of long-chained streptococci staining by Gram's method.

Histological Specimens.—(Lantern slides of micro-photographs):

Specimen 1.—Sections of the cochlea, showing round-cell infiltration in the scalæ and membranous cochlea.

Specimen 2.—Similar sections under high power, showing crowds of polymorphonuclear cells.

Specimen 3.—Similar sections—oil immersion $\frac{1}{12}$ inch objective, stained by Gram's method, counter-stained with carbol fuchsin—showing masses of long-chained cocci on the outskirts of crowds of leucocytes.

Mr. Scott submits that cases of this description are not rare.

That the meningitis, especially in children, is due to unsuspected unilateral labyrinthitis, secondary to middle-ear disease.

A consideration of such cases which have come under his observation leads him to infer that many should be saved by timely operation, that the distended cisternæ at the base of the brain should be drained *through the labyrinth*, and the spinal theca drained by lumbar puncture; possibly it would be necessary in some cases to drain the lateral ventricles too.

Note.—He is indebted to Dr. Whipham for permitting him to record this case.

PRELIMINARY NOTE ON CYTOLOGICAL EXAMINATION OF THE DISCHARGE
IN CASES OF MIDDLE-EAR AND MAXILLARY SINUS SUPPURATION.

BY MR. JOHN M. DARLING.

In ten cases of suppurative middle-ear disease a cytological examination of the pus was made. Leishman's and Jenner's stains were used. The results coincided for the most part with those of Dr. Milligan. The presence, however, in some instances of large numbers of epithelial squames suggested cholesteatoma where at subsequent operation none was found.

In forty cases of maxillary sinus suppuration a similar examination was made. The pus was usually obtained by puncture of the nasal wall and washing out. Recognition of the different types of cell was rendered difficult as a rule by the advanced degeneration present. More satisfactory results would probably be obtained by examination of a second washing at a short interval after the first.

In thirty-one chronic cases no myelocytes were found. Five showed lymphocytes in excess, and epithelium was recognised in sixteen (one ciliated, four columnar, nine squamous, and two both columnar and squamous).

Nine recent cases showed polymorphonuclear and mononuclear pus cells only, with the exception of one case—a nine months' case already under treatment for three months by the nasal route—where squamous epithelium was observed in addition.

Dr. LOGAN TURNER thought he was right in saying that the results obtained by cytological examination were not very encouraging so far.

Dr. DARLING, in reply, said that it was extremely difficult to get a specimen of pus from the antrum uncontaminated, and that it was very often extremely difficult to make out the various kinds of cells in the pus, because the degeneration was so very marked. Of the thirty-one chronic cases he had examined, only sixteen had shown epithelium and five leucocytes in excess, while none had shown myelocytes. The one case in which ciliated epithelium was found was cured by operation through the nasal wall. Of the four cases which showed columnar epithelium one had not yet been treated, two were treated by the alveolar operation and were still uncured, and one was cured by radical operation. The two cases where both columnar and squamous epithelium were found were both cured by operation by the alveolar route. Of the nine cases showing squamous epithelium only, five were treated unsuccessfully by the alveolar or nasal operation, two were cured by the alveolar operation, and two by the radical operation. One of the cases which showed lymphocytes in excess was cured by radical operation, while the other four treated by the nasal route were still uncured. Of the nine recent cases which he had examined only one showed epithelium. Two were cured by radical operation, and the remainder by measures short of that,

with the exception of the case where epithelium of the stratified type was found. This case was treated by the nasal route and was still uncured. The results encouraged one to proceed further, but he did not think that they had as yet any definite data to act upon.

BRITISH MEDICAL ASSOCIATION.

Meeting at Sheffield, Wednesday, July 29, 1908.

OTO-LARYNGOLOGICAL SECTION.

Abstract of Proceedings by DR. DAX MCKENZIE.

President, DR. WILKINSON, Sheffield.

AFTER extending a welcome of the members of the Section, Dr. WILKINSON adverted to the compulsory medical inspection of school-children, an act which would much increase the responsibility of medical men, particularly of specialists interested in this section of the work. He alluded to Cheatle and Murray's investigations on the hearing of school-children, which showed that the percentage of children suffering from diseases of the ear and upper respiratory passages was very high.

DISCUSSION ON CHRONIC INFLAMMATION OF THE PHARYNX AND NASO-PHARYNX.

Dr. PETER McBRIDE, in introducing the discussion, mentioned first of all chronic and inflammatory tonsillitis, and asked at what stage interference should be deemed necessary. In the case of hypertrophy with no symptoms in a person with a healthy chest interference was, in his opinion, unnecessary. He had found iodine or other pigments, and occasionally the electric cautery to the whole surface of the tonsil, of service. Occasionally crypts could be incised with a small knife, and so the tonsil broken up into segments which could be punched out. Where the orifices of the crypts were small and difficult of access the electric cautery gave good results, and although it had been said that this treatment only sealed up the crypts and enabled secretion to collect underneath, the speaker himself had never seen this happen. Where crypts contained plugs of secretion and the supra-tonsillar fossa was well marked he preferred the knife and the punch. In cases

in which there were enlarged glands in the neck the tonsil when removed sometimes showed tubercle bacilli, and then he preferred to enucleate. In children he always used the guillotine. Escat limited the guillotine to children under eight. Dr. McBride did not find the use of the bistoury and scissors satisfactory in an ordinary way. A hot or cold snare was occasionally employed, and there were other methods known to all.

Chevalier Jackson had stated that, in the usual method of operating by the guillotine, cicatricial tissue covered the tonsillar stump, and the condition of the patient after operation was worse than before. With this opinion the speaker disagreed. Enucleation should not be regarded as the routine procedure, because it is possible that in the tonsillar tissue we may have a defender of the organism against bacteria. Bleeding was a rare sequel to the operation of tonsillotomy, but occasionally it proved troublesome. He had found that after removal under local anæsthesia it was a good plan to make the patient stand up. He was surprised that the recumbent position was still advocated both in epistaxis and in bleeding from the tonsil, and yet we all knew that syncope was a reliable hæmostatic, and for this reason the standing position was of utility. Other methods of stopping hæmorrhage that might be mentioned were the cautery, pressure, suture of the pillars, Michel's clamps, and the tying of the external carotid artery. Chevalier Jackson had found that, after the clot was removed from what seemed to be a mere oozing, a spouting vessel could generally be found.

Reverting to other inflammatory diseases of the tonsil, he said it was questionable whether keratosis could be included under this heading. This condition seldom required treatment, but if it caused discomfort the clumps could be destroyed with forceps. As a rule the tonsils were the parts most implicated in the disease. Germicides were of little use, with the possible exception of salicylic acid in solution. Left alone the patches of keratosis tended to disappear spontaneously.

Ulcers of the tonsil, excluding syphilitic conditions, were uncommon. He mentioned forms of tonsillar ulceration described by Moure, *amygdalite ulcéreuse aigue*, in which there were few constitutional symptoms, and the floor of the ulcer was occupied by a slough. The disease seemed to be commoner in France than it appeared to be in England. The prognosis was favourable, and the chief interest centred in the diagnosis, since these ulcers resembled mucous patches.

Turning to chronic pharyngitis, he said that in pharyngitis sicca the treatment was simply palliative.

In granular pharyngitis, granules were to be seen on the posterior wall of the pharynx, and the lateral folds were congested and swollen, and proved a source of great irritation in many cases. There were two types of granular pharyngitis: One in which the pharynx appeared pale and anemic. In these cases the symptoms complained of were paræsthesia and weakness of voice. They were cured by iodine pigment and the internal administration of iron, arsenic, or strychnine. The granules could be destroyed by the cauterizer, but he thought the effect of this treatment was as much mental as physical. In cases characterized by huskiness of the voice and discomfort in the throat the ridges behind the pillars might be incised. In the second group, congestion and irritability were salient characteristics. There were coughing and retching, especially in the morning, and the uvula was generally found to be enlarged. These patients were, as a rule, men who "did themselves well," indulging somewhat too freely in alcohol, tobacco, highly-spiced foods, etc., and the pharynx generally yielded to the results of careful dieting and regimen. Pigments and the electric cauterizer might be resorted to. He preferred the pipe or cigar to cigarettes. These patients frequently objected to strict rules at home, and benefit might be obtained by sending them to watering-places. In plethoric cases purgative waters were of service, and without using the word "gouty," he found that condition was benefited by the use of colchicum and iodide of potassium.

In chronic pharyngitis, nasal stenosis if present might require treatment. In the milder cases breathing exercises should be recommended. These exercises should not be limited to the respiratory muscles only, for exercises of the limbs and body generally were of the utmost importance. There were some cases in which there were complaints of constantly catching cold, and, which upon examination presented no signs of trouble in the nose, pharynx, or larynx. In such cases nasal stenosis should be rectified, but the speaker considered that it was wise to warn the patient that this treatment would not eradicate the tendency to catch cold. Among the commoner forms of nasal stenosis, alar collapse might be numbered, and for this there were many remedies, operative or other. With regard to the tendency to catch cold he referred to the work of Moritz Schmidt. This author advised cold-water sponging followed by dry friction, and in cases in which this proved too rigorous a method of treatment bathing might be per-

formed with warm, and then by degrees with colder water, or hot baths might be followed by cold baths. Sea-bathing was of great advantage. Along with these rules he prescribed regulations regarding the clothing, which in the speaker's opinion were truly Spartan. Schmidt dwelt upon the noxious effects of hot rooms. His principles were to accustom the skin to different temperatures by exposure to cold water, etc., aided by gymnastics and exercises. It was important before prescribing physical exercises to make sure that the heart was sound. The speaker thought that Schmidt did not sufficiently emphasise the details of the exercises. In this country the use of the morning bath with friction, and the life with open windows were uniform practices. Most people said they took exercise, but it would be generally found that their exercise was ill-regulated, and that on the days when they went golfing or hunting they ate and drank proportionately more than was necessary. He would lay it down as a rule that when exercise was required it should be prescribed and the details gone into. Regular exercise enabled the patient to avoid all types of chronic pharyngitis, but if under these circumstances he still was found to suffer from the disease it would be discovered on investigation that he smoked or drank too much. To practise respiration through the nose was specially useful in alar insufficiency, and benefited the general health. No doubt too much had been expected from the use of breathing-exercises by some people. Medicinal exercises should vary with each individual, and in all cases should amount to what might be termed "modified athletic training." The heart, the age, and the patient's strength, of course, ought to be considered. In exercising the body all the muscles should participate. The result of a properly regulated form of exercise was to give rise to an increased feeling of warmth. Excess, straining, and fatigue must be avoided. After exercising, a cold sponge, and friction with a rough towel were advisable, and the exercise should be taken twenty or thirty minutes before the mid-day or evening meal. In those forms of regulated exercise which went by the name of "physical culture" he considered that the breathing was badly timed, sufficient provision not being made for increase of respiration, consequently, after each individual exercise a few minutes should be given in which rapid breathing might be performed. Time and trouble were necessary.

Dr. BARRY BALL (London), dealing with chronic inflammation of the naso-pharynx, said that this trouble was usually secondary either to rhinitis or pharyngitis of the lower pharynx. The

presence of morbid secretions in the naso-pharynx was a fruitful source of inflammation in that region, and the proximity of the Eustachian orifices rendered such cases dangerous. Chronic naso-pharyngitis, or, as it was usually termed, post-nasal catarrh, was a disease of adult life. In children the same symptoms if present were due to adenoids. All morbid secretions from the nose, etc., which obtained access to the naso-pharynx were retained there because of the difficulty of expelling them; particles of dust also lodged in these regions. In adults the remains of adenoids were frequently the seat of catarrhal changes with plentiful mucous secretion. In other cases the catarrh of the naso-pharynx was dry and there might be some atrophy. Chronic rhinitis was frequently associated with hypertrophic form of catarrh in the naso-pharynx. Under these circumstances the space was reduced in size and the pharyngeal tonsil, if not completely atrophied, might be the seat of a chronic lacunar tonsillitis. Occasionally the disease affected the central bursa of this region and the secretion dried in shape of a triangular crust on the posterior wall. With regard to treatment it was necessary to consider the conditions upon which the disease depended. The nose, if blocked, should be made free, otherwise cleansing of the naso-pharynx was a difficult task, and the persistence of the disease in many cases arose from this fact. If chronic rhinitis was neglected the disease in the naso-pharynx would not get well. The consumption of alcohol and the use of tobacco should be carefully regulated. The secretion in the naso-pharynx should be removed by washes through the anterior nares. He used for this purpose a small rubber ball syringe of the capacity of one ounce, preferring it to douches and irrigators. A post-nasal syringe was difficult to use. Regarding washes, it would be found that alkaline or saline solutions agreed best when isotonic to the blood; soda bicarbonate in the strength of 6 grains to the ounce and common salt in the strength of 3 grains to the ounce fulfilled this requirement. He doubted the efficacy of antiseptic washes, but in dry cases, after cleansing, a spray of vaseline oil containing menthol would be found serviceable. The treatment should be persevered in or relapse might be expected. Iodine and glycerine in increasing strength was useful not only in dry, but in all cases. The benefit derived from nitrate of silver was doubtful, and the electric cauterly should never be used in the naso-pharynx. If the disease was in the pharyngeal bursa or tonsil these should be treated, the former by being opened and the latter by removal.

In the treatment of adenoids he was sure that no medical treat-

ment was of the slightest value. The inflammation which frequently attacked adenoids and which intensified all the symptoms might be treated medically, but nothing short of surgical operation could be recommended for the growths themselves. No one nowadays believed that breathing exercises alone were sufficient to cause retrogression of the adenoid tissue. Between fourteen and twenty natural retrogression took place no doubt, but it took place whether the patient had breathing exercises or not. Adenoids should be removed only when they caused symptoms, but there were certain cases in which a large mass of adenoids was present without symptoms where operation might be recommended as a prophylactic measure. For the operation a general anæsthetic was necessary. He had no rules to give regarding anæsthesia since he preferred to leave these details to the anæsthetists. All he stipulated for was sufficient time to complete the operation, and nitrous oxide gas did not fulfil these requirements. Gas and ether, or chloroform were preferable. Concerning recurrence, he was of opinion that it took place exceptionally when the operation was performed in a child under three years of age, but in older children recurrence after an operation properly performed was never found. Regarding those cases in which it was said the operation was performed three and four times all he could say was that it was inefficiently done. After operation, nasal respiration was spontaneously restored in most cases, but it could not be denied that occasionally the ultimate result of restored nasal breathing was not obtained even with the greatest care and expense. It would be interesting to know how much benefit had accrued to the community since the removal of adenoids had been so widely practised; at the same time it could not be denied that all the benefits expected by the earlier operators were not always obtained. Nasal breathing was sometimes not re-established; deafness sometimes persisted; chronic suppuration of the middle ear did not always get well; and for this reason one had to be careful before performing an operation not to promise too much.

MR. MARK HOVELL (London) was surprised at one omission in the last speaker's remarks regarding the cause of the persistence of adenoid symptoms after operation. In the speaker's opinion persistent symptoms were always due to the enlargement of the posterior ends of the inferior turbinals. For this reason the removal of these posterior ends should be practised as part and parcel of the operation in all cases. It was no rare occurrence to find symptoms persisting after the ordinary operation, but since he had begun to remove the posterior ends he had never seen a failure. He had often operated by removing the posterior extremities in cases where the adenoids had already been removed by other men. This addition to the ordinary operation did not increase the bleeding, and

in nearly all cases the posterior ends could be successfully removed by Mackenzie's snare.

Dr. SCANES SPICER (London) was struck with the note of dissatisfaction in the remarks of the introducers of the discussion with regard to the results in adenoid operations. When the symptoms persisted the possibility of nasal stenosis should be kept in mind, and should be dealt with when present. Regarding physical culture, the speaker observed that forced inspiration through the nose in cases where the passages were blocked aggravated the morbid condition by increasing congestion and engorgement of the intra-nasal structures. In those cases one could see that the chest was sucked in at the sides, and children after the exercises were often worse than before. Scientific physical culture postulated the perfect balance of the whole body. The nose must be opened up before the culture was started. He had recently become aware of a teacher of breathing exercises in London who had succeeded in many cases where other people had failed.

Dr. DUNDAS GRANT (London) said that in dealing with enlarged tonsils in adults he had not obtained good results from simple dissection. In tonsils with deep crypts he preferred punching the tonsillar tissue, a method which, as it were, converted the flask into a basin. He alluded to massage of the tonsil from the outside, and had found that the "*Mandelquitscher*" of Hartmann was useful in causing the extrusion of the caseous masses from the tonsillar follicles. The punch he employed was that known as "Ruaults," and he reserved the wire *écraseur* for favourable cases. The electric snare he did not advise on account of the eschar left. When the tonsil was covered or hooded by a large *plica triangularis* he incised this fold and so obtained access to the tonsil. It should be pointed out to patients in whom uvulotomy was performed that their cough might not be immediately relieved. Too much attention, he thought, had been paid to the granules in granular pharyngitis, and he agreed with Dr. McBride when he stated that the electric cautery in such cases gave relief which was mental rather than actual. The neurotic factor was often the most important, and for paræsthesia he advised the application of menthol in olive oil. Physical exercises should be frequently changed, because a continuance of the same exercises day after day was a dismal and uninteresting proceeding. He had found many hints in a book published by Spalding, entitled 'Ten Minutes' Exercise for Busy Men.' Regarding post-nasal catarrh, most benefit could be obtained in cases in which a small adenoid mass was present by scraping the mass away. In children bronchitis and symptoms which simulated phthisis were frequently due to adenoids. For cleansing purposes he preferred an inspiratory or snuffing nasal douche to any form of syringe as offering less danger of the fluid being driven up into the Eustachian tubes. This might advantageously be followed by sprays of liquid vaseline. Violent inspiratory exercises with nasal obstruction were calculated to be injurious to the heart and the thoracic organs generally.

Dr. WATSON WILLIAMS (Bristol) said that surely Mr. Mark Hovell's experience regarding the posterior ends of the inferior turbinals was unusual. He did not think that it was shared by the other members of the Section. Pharyngitis due to dyspepsia was analogous to the pharyngitis produced by toxic materials, such as atropin, muscarin, etc. Similar results were produced in dyspepsia. Frequently the cause of chronic pharyngitis was obscure. He occasionally came across cases in which general pains were associated with sore throat, and pharyngitis might thus be a local manifestation of a general dyscrasia.

Mr. ATWOOD THORNE (London) was distinctly of opinion that tobacco had little or no effect on the pharynx. The paper published by Lack some years ago had, he thought, effectually disposed of this supposition. Naso-pharyngitis was always secondary to some other condition. Unlike Mr. Mark Hovell he did not approve of the removal of the posterior ends in all cases, but only in a few.

Mr. S. KNOWLES RENSHAW said that the exciting cause of granular pharyngitis was mouth-breathing. He recommended that in place of the sprays the medicinal agent should be mixed with soft paraffin in ointment form, because that substance adhered to the surfaces longer than a watery solution.

Mr. S. OUSTON found that hypertrophy of the posterior ends was present in almost all cases.

Dr. ANDREW WYLIE (London) wished to draw attention to a cause of pharyngitis which seemed to have escaped the notice of the introducers. This was paresis of the soft palate such as was found in gumma, peritonsillar abscess, etc. After any of those complaints paresis was a frequent occurrence, and food collected above the soft palate and thus led to the disease. In other cases deficiency of teeth and hepatic disease were exciting causes, and he occasionally found it after the removal of adenoids and tonsils in children. He was in the habit of advising that the patient during breathing exercises should lie on a hard table with arms extended.

Dr. HARING advised that local conditions should receive attention in order that sources of irritation may be removed. He recommended that patients suffering from the complaint should go to high altitudes. Among drugs, bromides and sulphur were useful in reducing congestion, and he had found calcium sulphide of great service. Douching was the method *par excellence* in atrophic rhinitis. He also objected to Mr. Mark Hovell's sweeping remarks. He alluded to the occurrence of what had been termed "false adenoidism" where all the symptoms of adenoids were present but no vegetations were to be found on examination.

Dr. JOBSON HORNE (London) said he was grateful that he had passed his early life in the pre-adenoid days, because had he as a child been directed to practise the various methods of breathing exercises described by the members he would have revolted. He was grateful also that he had never been operated upon because the adenoid tissue in the tonsils and elsewhere was perhaps an important defence to the organism of which they knew too little. In cases which showed enlarged tubercular glands in the neck, the tonsils and adenoids did not give any evidence of the presence of tubercle bacilli in the tissue removed, and thus it might be that these structures either destroyed or rendered the organisms inert. It was bad surgery to remove these structures if no mechanical disturbance was present, and there was undoubtedly a tendency to operate unnecessarily. He agreed with most of the speakers that it was unnecessary to remove the posterior ends, especially in children, in whom the enlargement was more apparent than real. Children required no intranasal surgery. They would remember the saying of Juvenal that "Bacchus and Venus were the cause of throat troubles."

Dr. McBRIDE, in reply, said that it was difficult to treat the condition known as Thornwaldt's disease. He also disagreed with Mr. Mark Hovell's remarks. Dr. Dundas Grant had mentioned massage. The speaker preferred von Troeltsch's gargling methods. He did not agree with Mr. Atwood Thorne's opinion that tobacco was not the cause of the disease, nor could he admit that paresis of the soft palate was a cause, as Dr. Wylie had said.

Dr. BARRY BALL, in reply, said he preferred the guillotine for the excision of the tonsils. If necessary he freed the tonsil from its surroundings. If the tonsil were well separated from the anterior pillar a clean excision could be obtained. Regarding breathing exercises he was very sceptical of their good effect. In a certain number of cases the persistence of the symptoms might be due to enlarged posterior ends, but there was no necessity to remove them in all cases. They were fairly often enlarged in children, but subsided spontaneously in a year or two after operation. At the same time, when all was said and done there was a residuum of cases in which the results were not quite satisfactory. He also thought, with Dr. McBride, that tobacco might be looked upon as a cause of chronic pharyngitis. Thornwaldt's disease was very rare and might be treated by slitting up the median recess with a small hook-shaped knife.

CERVICAL TUMOURS SIMULATING ENLARGED GLANDS ASSOCIATED WITH LARYNGEAL PARALYSIS.

By Dr. ANDREW WYLIE.

The cases were three of endothelioma and one of lymph-adenoma. In one of the former the common carotid artery had ruptured during convalescence from the operation, causing sudden death. In the others removal was completely effected with no recurrence.

The PRESIDENT said that endotheliomata of the neck were fairly common, and those described in the paper seemed to present the usual characters in that they were present for many years and then suddenly began to increase. It was always difficult to dissect them away from the carotid sheath. It was supposed that these tumours grew from the carotid body.

THE USE OF BOUGIES FOR DILATING THE FRONTAL SINUS INFUNDIBULUM.

By Dr. DUNDAS GRANT.

These consisted of metal sounds curved like Hartmann's frontal sinus cannulae. A small bougie was first of all introduced and then larger ones in succession until the duct had sufficiently dilated, and then the sinus was washed out. He described cases in which the duct had been dilated so that the patient could wash the sinus out for himself. The method of treatment was, he thought, worthy of trial before resorting to the radical operation.

Dr. HUNTER TOD (London) asked if the bougies tried were soft.

Dr. DUNDAS GRANT, in reply, said he intended to have a more flexible set made on the same principle as Lister's urethral bougies.

SOME POINTS ON THE ANATOMY AND SURGERY OF THE TONSILS, ILLUSTRATED BY STEREO-PHOTOGRAPHS.

By Mr. JAMES HARDY NEIL.

He advocated the enucleation of tonsillar tissue.

SOME EXPERIENCES IN DIRECT EXAMINATION OF THE LARYNX,
TRACHEA AND ŒSOPHAGUS.

BY DR. BROWN KELLY.

The author had found the method distinctly useful, especially in infants. He narrated a case of congenital laryngeal stridor in which the direct method of examination had shown the vibration of the summit of the arytenoids which originated the croaking sound, thus demonstrating the correctness of the views expressed by Sutherland and Lack some years ago.

He had operated by the direct method in removal of papillomata and nodules from the vocal cords, and had found tracheoscopy very useful. He had been successful in removing a haricot bean from the bifurcation of the trachea. The direct method of examination was also useful in those cases in which there was pain in the throat from no very obvious cause, for it was possible in some cases to show that this pain originated in malignant disease of the anterior wall of the œsophagus. He had also found it useful in the diagnosis of diverticula of the œsophagus.

DEMONSTRATION OF THE METHODS OF DIRECT LARYNGOSCOPY,
BRONCHOSCOPY AND ŒSOPHAGOSCOPY.

BY MR. E. B. WAGGETT.

(To be continued.)

AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Thirtieth Annual Meeting held at Montreal, May 11, 12, and 13, 1908.**(By courtesy of the Medical Record.)*

DR. HERBERT S. BIRKETT, of Montreal, President.

*(Continued from p. 452.)**Hyperplasia Lateralis Linguae; Papillitis Atrophicans Bilateralis Linguae.*

Dr HENRY L. WAGNER, of San Francisco, reported these two cases. The first was that of a man, aged forty, an inveterate cigarette smoker, with some dental defects and a narrowed lateral diameter of the lower jaw. There was a hyperplasia of the super-

ficial structures of the side of the tongue with similar pathological conditions of both lower turbinals. The patient particularly complained of a lancinating pain caused by a very small ulcer in the centre of the hyperplastic lingual tissue. A thorough extirpation of the area complained of relieved all symptoms. Microscopical examination of the tissue removed showed a true hyperplasia of all the layers of the mucosa.

The second case was that of a woman, aged fifty-four, with small whitish vesicles similar to herpes, on the left side of the tongue, recurring at regular intervals and accompanied by general malaise. A few days subsequent to each attack a subacute inflammation followed. Bilateral atrophy gradually set in, but a prolonged iodide treatment had prevented recurrence for nearly a year. The microscope showed a thinned but dense epithelial layer, a deeper layer corresponding to the rete mucosum, and a loose fibrous structure of the corium with almost complete obliteration of the secondary papillæ. Few mucous glands remained. No lump or nodule appeared in the tongue. The condition suggested, but for the atrophy, the parenchymatous hemiglossitis described by Butlin.

Dr. J. P. CLARKE asked how Dr. Wagner would rule out pemphigus of the tongue as a possible diagnosis in his second case.

Dr. J. H. BRYAN thought that one did not get atrophy with pemphigus in this situation.

Dr. J. W. FARLOW had seen several cases of pemphigus of the month, but in that disease the eruption is bullous and not vesicular as in Dr. Wagner's case. He had not seen atrophy follow bullæ, and would not consider this case as one of pemphigus.

Dr. WAGNER admitted that the examination made at the time of eruption did not coincide with all the desiderata for a diagnosis of pemphigus, and he had simply left this question open, being glad to have light thrown on the matter.

Sarcoma of the Tonsil.

Dr. J. EDWIN RHODES, of Chicago, reported a case in a man, aged thirty-five, whose symptoms had begun some six months previously with pain at the angle of the jaw. He had lost flesh, retained his appetite, but had some difficulty in swallowing on account of the size of the growth. Recently he had had attacks of dyspnoea, also slight bleeding from the month. No external glandular enlargement could be made out, but a growth ran from

the left tonsil two thirds of the way across the fauces. It was pinkish, lobulated, easily penetrated by a smooth flat probe and showed blood-vessels indistinctly over its surface. Removal was determined on and the external carotid artery was first tied on the left side, local anæsthesia being used. This was a difficult operation, as, in order to breathe, the patient had to keep his head flexed and chin lowered. Following this, cocaine and adrenalin were injected freely into the base of the tumour through the anterior pillar. The mass was gradually enucleated, but owing to the patient's retching it had to be removed in fragments in several attempts. Recovery was without incident except that a small ligature abscess occurred. The microscopist reported round-celled sarcoma of the alveolar type. One month after operation the patient had a small mass in a new site on the lateral wall of the pharynx behind the posterior pillar. No second operation was deemed immediately necessary, and as the patient was leaving for his home city he was advised to use the X-ray treatment and if possible to take the Coley toxins. He was reported as doing well, but in view of the laboratory findings Dr. Rhodes did not feel optimistic as to the eventual cure.

Dr. D. BRYSON DELAVAN, of New York, referred to the starvation treatment of such growths as elaborated by Dawbarn. It was quite possible that ligation of the carotid would be an advisable procedure before the extirpation of such tumours as the one described by Dr. Rhodes. Even if it did not result in cure we would still have the alternative of the more extensive operation.

Dr. RHODES replied that he would not expect much from such a procedure as ligation of the carotid, as owing to the quick re-establishment of the collateral circulation the inhibition of the growth would not result. The call for immediate operation in his own case was on account of the size of the tumour.

Dr. B. ALEX. RANDALL, of Philadelphia, had noted in a ligation, such as that described by Dr. Rhodes, entire absence of pulsation in the temporal artery for sixteen days. This would give some idea as to the time required for the re-establishment of collateral circulation.

The Influence of Adrenalin in the Causation of Arterio-sclerosis.

Dr. FREDERIC E. HOPKINS, of Springfield, Mass., gave a review of the literature of the last four years. He found that the unreliability of animal experimentation vitiated many of the conclusions drawn as to the deleterious effects of the remedy on the vascular

system. Moreover, it has been shown that large doses could be given continuously to patients without causing arterio-sclerosis. He therefore felt that there was ample ground for re-assurance in the reasonable use of the remedy.

Dr. C. F. THEISEX, of Albany, said that recent experiments had shown that atheroma of the vessels was usual only when the adrenalin was injected intra-venously.

Dr. HARRIS P. MOSHER had made some experiments on guinea-pigs, but in no instance did adrenalin, applied to mucous membranes in the nose, have any effect on the aorta.

Dr. B. ALEX. RANDALL, of Philadelphia, had used adrenalin with benefit on cases of exophthalmic goitre and in otitic vertigo. He had never seen any result on the vessels. He preferred, for the conditions named, the desiccated adrenals in doses of two or three grains, using the adrenalin chloride only as an emergency preparation which could be taken instantly at the first threat of trouble.

Recurrent and Abductor Paralysis.

In the symposium on this subject Dr. J. W. GLEITSMANN, of New York, read a paper on the *Ætiology from Central Causes*; Dr. D. BRYSON DELAVAN, of New York, one on the *Ætiology from Peripheral Causes*; Dr. CLARENCE C. RICE, of New York, a paper on the *Symptomatology*; and Dr. W. E. CASSELBERRY, of Chicago, one on the *Diagnosis and Treatment*, of which the following are abstracts:

The first paper was by Dr. J. W. GLEITSMANN, of New York City, who made some introductory remarks on the anatomy and physiology of the parts involved, and then took up the matter of *ætiology from lesions of central origin*. According to the location and nature of the disease, we can distinguish paralysis due to cortical lesions, disturbances of the nerve tract in the internal capsule between cortex and bulb, bulbar processes, syphilis, tumours, exostoses at the cranial base pressing on the pneumogastric, spinal disease, and final paralysis of the Avellis and Hughlings Jackson type. As to paralysees due to cortical lesions we are on a much-debated ground. The trouble arises from the fact that even in autopsies the bulb is not always examined, so that the presence of a cortical lesion does not exclude a bulbar involvement in addition. In the author's view there are at the present time but few observers who believe in an unilateral laryngeal paralysis brought about by unilateral cerebral disease. Laryngeal movements can be excited by each of the two cortical

centres independently of the loss or destruction of one of them. Furthermore, experimental extirpation of the hemispheres down to the fourth ventricle does not interfere with the respiratory movements of the cords, the integral function of the abductor. Progressive bulbar paralysis being due to a degeneration of the motor nuclei in the medulla represents a genuine type of the bulbar origin of laryngeal paralysis. As a rule, paralysis of other organs—tongue, lips, etc.—precedes laryngeal symptoms. The laryngeal picture will vary according to the focus and intensity of the process. Another bulbar affection is that caused by hæmorrhage of this region, thrombosis with subsequent softening or embolism of the vertebral or basilar arteries. In meningitis we rarely have laryngeal paralysis. So also it is rare in multiple cerebro-spinal meningitis. Syphilis of the brain may cause paralysis limited to the larynx. Tumours at the base generally cause laryngeal trouble by pneumogastric pressure. In locomotor ataxy abductor paralysis is the prevailing type. So also laryngeal paralysis has been noted in amyotrophic lateral sclerosis and acute spinal lepto-meningitis, syringomyelia and progressive muscular atrophy. Avellis drew attention to the occurrence of simultaneous unilateral paralysis of the larynx and soft palate. In another form the muscles of the neck are also paralysed. Hughlings Jackson called attention to associated paralysis of the pharynx, larynx and tongue.

Second Paper.—*The Ætiology of Paralysis from Peripheral Causes* was discussed by Dr. D. BRYSON DELAVAN, of New York. He made three general groups of cases: (1) Those due to trauma; (2) those due to mechanical pressure on the nerve; and (3) those due to some toxæmia, either from a poisonous substance taken into the body or from disease. The trauma would include gunshot and incised wounds of the neck, injuries arising from surgical operations, and foreign bodies in the larynx or neighbouring regions with unsuccessful attempts at removal. Mechanical pressure may be caused by disease of the glands or lymph nodes, tumours, aneurysms, diseases of the heart or pleura, and scoliosis. Thyroid enlargement is a very common cause, but the size of this organ seems to have little effect on, or relation to, the amount of danger inflicted on the recurrent nerves. Large ones may give no trouble; small ones may cause death. In the author's experience aortic aneurysm has been the most frequent cause of left paralysis. From its position with regard to the apex of the right lung the right recurrent may be pressed on under certain pulmonary condi-

tions. Some cases which have been ascribed to pressure in abnormal thoracic conditions may have been due to the severe inflammatory conditions rather than to simple mechanical pressure. By far the most interesting group of cases is the third, viz. that due to toxæmias. About these we know but comparatively little. Drugs and infectious diseases may both thus act. There may be a peculiar and distinct vulnerability of the recurrences to toxic effects. Of mineral and vegetable poisons mention was made of lead, arsenic, antimony, copper, iodide of potash, iodoform and perhaps cyanide of potash and phosphorus. Of vegetable poisons, mention was made of alcohol, opium, belladonna, cannabis indica, and cocaine. The list of infectious diseases comprised typhoid fever, acute rheumatism, influenza, diphtheria, typhus, pneumonia, puerperal fever, erysipelas, measles, scarlet fever, gonorrhœa, and serum therapy. Our future knowledge along this line must come from a consideration of, and an answer to, the following propositions: (1) Is there any truth in the supposition that there is a selective affinity existing in these particular nerves (recurrences) in favour of certain particular drugs through the influence of which the one exercises an inhibitory effect upon the other? (2) Does the drug produce changes in the nerve tissue itself which result in the loss of its activity? (3) Is the lesion a neuritis, induced by pressure of congestion of neighbouring parts or by other causes? and (4) Are the effects on the nerve due to central causes, the latter induced by the drug? The "affinity" doctrine seems to be contradicted by the fact that the cases are generally unilateral, not bilateral. The same objection applies to (4). In regard to pressure, it seems probable that this is the mode of action in many instances. The writer was not inclined to place absolute reliance on the recent statistics of Sendziak, as references were not given and his statements could not be verified, nor could the articles from which he derived his material be studied.

Symptomatology.—The third paper was read by Dr. CLARENCE C. RICE, of New York City, on Symptomatology. The author set forth the clinical phenomena present in paralysis of the several muscles and muscular groups, taking up first the symptoms, laryngeal and general, of the several temporary disturbances in the efficiency of the laryngeal muscles, not caused by pathological conditions of the nerve-centres, but by injuries inflicted either on the peripheral nerve-filaments or upon the muscular tissue itself, and second, the symptomatology of paralysis of the large adductor

or abductor of the vocal cords and of total paralysis of the recurrent nerve. He called attention to the vast amount of literature on this topic, much of it confusing rather than illuminating, and therefore would write from his own experience. The whole question was complicated by the occurrence of spasm in various muscles, so that the detection of paralysis from spasm of opposing muscles was often difficult. The form of paralysis most frequently observed by the laryngologist was that in which all the muscles supplied by the recurrent nerve were affected. The band or bands were in the cadaveric position, and respiration was but little affected during rest. In unilateral cases the speaking voice steadily improved and the sound cord was able to go a longer distance, but at first the voice was lower pitched and uncertain. It became easily tired and the patients dreaded to use it because of breaks in pitch. In bilateral cases there could be no marked dyspnoea, but the voice was lost or was very breathy and uncertain, and because of non-approximation of the false cords the pitch in coughing was lowered and husky. The most frequent cause of such cases was intrathoracic pressure, or pressure in the upper cervical region. The author also called attention to the difficulty of diagnosis between the forms of paralysis and immobility of one cord by reason of an ankylosed crico-arytenoid joint. As a rule this joint, when affected, showed signs of inflammation, but there might be degenerative changes which did not affect the gross appearances of these cartilages. In unilateral ankylosis the sound arytenoid was only drawn up to, and not in front of, the disabled one, and also in ankylosis the cord was not in any known paralytic position, neither abduction, adduction, nor the cadaveric position. Theoretically, in non-paralytic conditions the cords were tense, while in paralysis they were limp.

Diagnosis and Treatment.—The final paper in the symposium was read by Dr. W. E. CASSELBERRY, of Chicago. He grouped cases under the headings aneurysmal, pleuritic, tumour, centric bulbar abductor, and central cortical. The author described the typical laryngeal picture under these headings, and then discussed some of the variations met with in his own experience or described in literature. In aneurysm we found the cord motionless in the cadaveric position, while its arytenoid was collapsed forward, which sank the cord a little below the plane of its fellow. In phonation the cord might twitch a little, but did not straighten. The sound arytenoid might cross a trifle, usually in front of, but possibly

behind, the paralysed one, while the healthy cord came nearly but not quite to the paralysed one. The collective presence of these features, rather than the mere cadaveric position of the cord, insured the fact of a complete recurrent nerve paralysis. Occasionally a co-existing swelling of the arytenoid was found which was liable to disguise its paralytic effect, and to simulate a crico-arytenoid ankylosis with fixation of the cord. In the forty cases on which the author's study was based, the left recurrent nerve was paralysed by an aneurysm in eight and the right nerve in six. In such cases we should endeavour to control local inflammation, avoid over-use of the voice, and give iodides. Of the pleuritic cases four were found in the group of forty. All were tuberculous. In all the right cord was affected. The tumour group comprised eight cases. Sometimes the ventricular band was hypertrophied, and almost covered the paralysed cord. Nature put forth this compensatory effort in order to endeavour to preserve the voice. Of the eight cases in this group voice impairment was a late feature. In very rare instances a "lazy cord" was the first intimation of laryngeal malignancy. The bulbar abductor paralysis group also comprised eight cases. The mere fact of symmetry in persistent abductor paralysis was indicative of a bulbar lesion. The flaccid cords flapped up and down, but did not separate. In the unilateral type, and also in the stage of intermittent stridor, we must recognise the possibility of an overpowering spasm of the opposing adductor muscles. A paralytic immobility was liable to lead into a sort of ankylosis of the joints, and the author had described a symmetrical ankylosis without much tumefaction, under the name of "arthritic deformans of the larynx." In this group we should push mercury and the iodides vigorously in the presence of even a remote suspicion of syphilis. In four of the author's cases tracheotomy was ultimately necessary. The cortical group comprises six cases. Laryngeal paresis could, of course, ensue from organic cortical lesions which affected the brain centres of both sides. In none of the author's cases was there any typical image of paralysis. In one the cord was nearly motionless in the cadaveric position; in two there was incomplete bilateral paresis, which predominated on the side on which the arm and leg were also affected. In this sub-group the predominating features were enfeeblement of pharyngeal muscles, impairment of articulation or aphasia. The others of the group were persons in advanced years with cerebral degeneration, the paresis of the cords being the cause only in part of the difficulty in speaking.

Dr. E. FLETCHER INGALS said he had found some difficulty in making a diagnosis of aneurysm in this form of paralysis in so far as the X-ray plate was concerned. He had noted invariably on the plates a darkened area just at the left side of the œsophagus due presumably to the large arteries. In two instances he had seen distinctly a small tumour just at the left side. He had thought that these swellings might be small aneurysms, but the autopsy in one case had failed to show any such condition. He would like to inquire of those present if they had had any such experience.

Dr. G. HUDSON MAKUEN said the interesting point was to determine the exact location of the lesion causing the paralysis. Three possible locations had been suggested in the papers presented: (1) In connection with peripheral organs, (2) in the medulla, and (3) in the cerebral cortex. He was sceptical in regard to the last named, for he did not recall an authentic case of abductor or adductor paralysis due to cortical disease. The fact that stimulation of the cortical centres would cause to-and-fro movements of the cords did not prove to his mind that a lesion in such a centre would cause true cord paralysis. It merely meant that stimulation of those cortical segments might incite the bulbar motor centres to action and thus cause the to-and-fro movements. In over two thousand cases of patients with gross defects of speech he recalled only one paralysis of a bulbar origin, and it was a case of unilateral abductor paralysis.

Dr. B. ALEX. RANDALL had had under observation a man with total cord paralysis from a cortical tumour, the removal of which had been successfully accomplished, but as yet with only slight return of power in the cord. A more perfect demonstration of a cortical lesion as the cause of the paralysis could hardly be seen.

Dr. H. L. SWAIN had seen three cases with inspiratory dyspnoea due to paralysis of the abductor muscles, but in all a local lesion had been found. In two it was a syphilitic immobilisation of the crico-arytenoid joint, and in one, which eventually came to autopsy, it was due to a complete necrosis of the cricoid cartilage.

Dr. J. O. ROE referred to a case of laryngeal paralysis due to a fusiform enlargement of the aortic arch. He had seen a number of cases of left-side paralysis due to tuberculous deposit at the pulmonary apex.

Dr. C. P. GRAYSON referred to a case under his care during the past winter, that of a man with dyspnoea and noisy stridor. Examination by every known method was without result as to the discovery of a cause, but the dyspnoea became so great that a

tracheotomy was called for. Later it was learned that he had had two or three attacks of peritonsillitis the year previous. Whether such a lesion might be the cause of a peripheral neuritis or not he could not say. The lesion in the larynx was a double abductor paralysis which might have resulted from a toxic neuritis in connection with the quinsies.

Dr. C. F. THEISEN said that the X ray was often of no service so far as a conclusion as to the cause for compression of the recurrent was concerned. In one instance sudden death had resulted from compression not only of this nerve but also of the pneumogastric in a mass of enlarged glands, although the diagnosis of aortic aneurysm had been made.

Dr. GLEITSMANN, in closing, wished to point out certain interesting facts. It was highly desirable that we should be more definite in our expressions and discussions when referring to laryngeal paralysis. As to the existence of cortical paralysis he would say that bilateral abductor paralysis in hysteria, etc., was of the cortical type. He agreed that the presence of a recurrent or abductor paralysis did not in many cases assist us in the diagnosis of the lesion which produced it. Patients might recover from laryngeal paralysis, though this was very uncommon. Of recovery from bilateral recurrent paralysis, but one case was known. Here the paralysis had been caused by large pericardial exudates on both recurrent nerves and had disappeared with the absorption of the fluid.

Dr. DELAVAN stated, in closing, that very few of us realised the varieties of causes which might produce this form of paralysis by pressure. Aneurysm was always thought of, but other possible causes were overlooked. The X-ray had proved of very great value, and no obscure case should be dismissed without recourse to it. Cricoid ankylosis was often mistaken for paralysis.

Dr. CASSELBERRY believed that the larynx had been neglected of late years, and that such discussions as the one now taking place were of the utmost benefit. He was disposed to place high value on the X-ray picture as an aid in the diagnosis of aneurysm. When one saw a projection on the plate and a pulsation with the fluoroscope a diagnosis was reasonably positive. As to diagnosis *intra vitam* of degeneration inside of the medulla we could only make it by observing similar cases which ultimately came to *post mortem*, and in which degenerated areas were found in this particular place. He was opposed to intubation in cases of abductor paralysis, because he thought it was dangerous to teach the patient to rely

upon the tube. If the tube was expelled the patient might die before it could be re-inserted. Cures reported of laryngeal paralysis might be cures of only ankylosis.

Abstracts.

PHARYNX.

Goodale, J. L.—*The Local Treatment of Acute Inflammations of the Throat from the Standpoint of Pathology.* "Boston Med. and Surg. Journ.," June 25, 1908.

In this paper are presented the results of an examination into the effects of local applications upon infectious processes of the tonsils and pharynx. The histological phenomena of acute tonsillitis are reviewed, and forty cases examined and treated by various antiseptic preparations considered. The results are thus summarised: (1) Acute tonsillitis in the early stage before the appearance of white spots or systemic depression was apparently aborted in some instances by local antiseptics. (2) In some cases acute tonsillitis, when seen early, was apparently checked by local antiseptics, but inflammation appeared in neighbouring organs and seemed to be of protracted duration. (3) Where systemic disturbance exists and white spots are present in the lacunæ, no checking of the inflammatory process was observed from the application of antiseptics. (4) The introduction of antiseptics into the crypts was followed by a heightening of the local inflammatory process, and in some cases by increased systemic absorption. The author also gives results of a series of experiments as to the possibility of sterilising the mouth for a given micro-organism. Twenty cases of diphtheria were taken, and the antiseptics used were peroxide of hydrogen, carbolic acid, and creolin. These experiments proved that it is possible to completely remove a given micro-organism from the mouth by chemical antiseptics.

Macleod Yearsley.

NOSE.

Sluder, G.—*The Role of the Spheno-palatine Ganglion in Nasal Headaches.* "New York Med. Journ.," May 23, 1908.

Attention is called to a type of headache which is irregular in the time of appearance and irregular in the part of the head involved. Sometimes the pain may be referred to the eyes, nose, teeth, or jaw. Often these irregular pains have followed some high-grade inflammatory troubles in the posterior ethmoidal and sphenoidal sinuses. Sluder offers the ingenious explanation that the spheno-palatine (Meckel's) ganglion has been involved in the inflammatory process. In some cases the use of cocaine just over the ganglion relieves the symptoms immediately. The application of silver or formaldehyde in weak solutions either cured or helped the pain. None of the cases were of sufficient severity to warrant operation.

Macleod Yearsley.

LARYNX.

Merrill, W. H.—*A Report of some Atypical Cases of Tonsillar and Peritonsillar Inflammations, with one unusual Complication.* "Boston Med. and Surg. Journ.," June 4, 1908.

Four cases described in which, with the usual constitutional and local symptoms of peritonsillar abscess, no pus was found, even on repeated incision; in one of these only a small quantity of pus was discovered between the tonsil and posterior pillar. The author reviews the literature of peritonsillar abscess, and then reports one case in which the illness lasted from September 9 to December 23, with double vision, ptosis, and proptosis, the symptoms only subsiding when the left supratonsillar fossa was properly drained.

In the discussion which followed this paper (read at the New England Otological and Laryngological Society) Mosher spoke fully of the pharyngo-maxillary fossa and supra-tonsillar fossa, and added to the catalogue of fossæ round the tonsil the "triangular fossa of the soft palate," a potential space which becomes actual when the palate is filled with pus. He also pointed out that the palate can hold a considerable amount of pus without ballooning forward. *Macleod Yearsley.*

EAR.

Leland, G. A. (Boston, U.S.A.).—*A Periosteal Flap for Use in Primary and Radical Mastoid Operations, with an Illustrative Case.* "Boston Med. and Surg. Journ.," April 23, 1908.

Leland's method is an endeavour to obliterate the posterior exenterated mastoid cavity, so that the dermatised middle ear may be seen at the bottom of an external canal not much larger than before, and secondary mastoid infection can be avoided. He cuts a periosteal flap from the outer surface of the mastoid process and pushes this down into the aditus, packing it in place so as to shut off the aditus from the middle ear. The paper requires reading *in extenso*, and would be better for an explanatory diagram. *Macleod Yearsley.*

Hélat (Rouen).—*Permeatal Exploration of the Maxillary Sinus with the Probe.* "Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx," May, 1908.

The writer describes a simple method of exploration of the maxillary antrum for the differential diagnosis between empyema and sinusitis. Having diagnosed the presence of pus in the cavity, a Krause's trocar and cannula are introduced into the antrum *via* the inferior meatus, the former is withdrawn, the latter left in and the cavity washed out. A probe is then passed through the cannula, and the sinus walls can then be explored in all directions. If the mucosa be healthy the wall feels hard on probing, and the case is one of empyema; if, on the contrary, the mucous lining be thickened or polypoid, the probe yields a soft sensation and sinusitis can be inferred. *H. Clayton Fox.*

MISCELLANEOUS.

Jones, Ernest.—*A Simplified Technique for accurate Cell Enumeration in Lumbar Puncture.* "Rev. of Neurol. and Psychiat.," 1907, p. 539.

The great importance of obtaining comparative results by accurate cell-counts is pointed out, and a new method described. For details the original paper should be consulted. By an application of the field method of counting to the ordinary Thoma-Zeiss hæmocytemeter, an accurate cell-count can be made in a few minutes, and without any calculation whatever. *Macleod Yearseley.*

Gaudier (Lille).—*The Use of Bier's Method in Oto-rhino-laryngology.* "La Presse Oto-laryngologique Belge," May, 1908.

A communication to the French Society of Otology, Rhinology, and Laryngology of the results of a trial of this treatment in ninety-two cases of various kinds.

Except in certain special cases, the elastic band, used with due precautions, is to be preferred to the exhausting apparatus for producing hyperæmia. Hot air was not employed.

In laryngeal tuberculosis it was found that Bier's method, either alone or in conjunction with tracheal injections, relieved dysphagia and tended to diminish œdema and secretion of mucus.

Acute tonsillitis became less painful, its course was shortened, and after the abscess was opened, healing was more rapid. In acute coryza, also, the course of the disease was remarkably hastened, and in some cases cut short in twenty-four or thirty-six hours. Furunculosis of the external auditory meatus was another disease favourably influenced by this method. On the other hand, acute sinusitis, acute otitis, and mastoiditis did not respond so favourably to the treatment.

Chichele Nourse.

REVIEWS.

Maladies du Nez et du Larynx (Diseases of the Nose and Larynx). By Drs. CARTAZ, CASTEX and BARBIER. With 65 figures in the text. Paris: Baillière et Fils, 1908.

The names of Drs. Cartaz and Castex are well known to all readers of French medical literature, and are a sufficient guarantee of the scientific accuracy and practical value of the work to which they are appended. The present volume is a fasciculus from a new treatise on medicine and therapeutics edited by Professors Brouardel and Gilbert, and written by specialists in the various departments of medicine. In his introduction Dr. Cartaz states that he confines himself mainly to the medical side of his subject, the operative aspects being relegated to the surgical fasciculi. This limitation precludes the consideration of some interesting points regarding which Dr. Cartaz's views would have been welcomed, but it is agreeable to find a work on rhinology in which the surgical side does not overshadow the rest. Dr. Cartaz studies the various questions in rhinology in a temperate and judicial spirit, and if less dogmatic than the younger writers it is obviously owing to his riper judgment. He deprecates the assumption that the nasal fossæ are aseptic; he considers acute rhinitis to be microbic, although the special

microbe is undefined, being sometimes the *Bacillus coryza sequentiosus*, the *Micrococcus catarrhalis*, streptococcus, staphylococcus, pneumococcus, pneumo-bacillus, influenza bacillus, etc. The study of the vaso-motor forms of rhinitis is ample and covers the hydrorhæic and spasmodic, the latter being of two varieties, the periodic and the non-periodic. Attention is drawn to a form of hypertrophic rhinitis described by Broekaert as *rhinite végétante*. Among other somewhat unfamiliar terms we are introduced to *rhinolease*, a form of nasal ulceration accompanying lesions of the medulla but possibly residua of syphilitic conditions, also to *sp'liopathies*, the disorders caused by chronic naso-pharyngitis. Tuberculosis of the nose includes lupus, which, he insists, does occasionally affect the bone in spite of opinions to the contrary.

Dr. Castex classifies diseases of the larynx under four headings: (1) acute and chronic infections, (2) tumours, (3) neuroses and (4) affections of the voice. This classification, if not academically logical, is much better, because it is incontestably practical, and the monograph is quite worth obtaining if only for this fourth section, which will be read with special interest by those who have to deal with that difficult class of patient, the voice-users. An excellent general account is included under these various headings of the diseases of the organ in question, but special reference must be made to the chapters on affections of the voice, as well as that on the neuroses. The experience acquired by Dr. Castex, when laryngologist to the great Parisian hospital for diseases of the nervous system, has evidently stood him in good stead, and the article on the neuroses, which we take to be by his pen, is extraordinarily full of information within comparatively small space. The same may be said of the affections of the voice in regard to which Dr. Castex is in a position to write, not merely as a man of science but also as an artist, and his intimate familiarity with the subject is obvious in every line. He is particularly happy in the description of those distressing cases in which there is little or no abnormality to be seen by means of the laryngoscope, and where the difficulties can scarcely be understood except by those who have themselves been singers. This chapter will be a great help to many who have not had his opportunities. The article upon diphtheritic croup is a work of the highest value, and we venture to assume that we may attribute its authorship mainly to Dr. Barbier, the collaborator of Dr. Castex in the preparation of the work. Dr. Barbier has had exceptional opportunities for studying the disease, and his descriptions of its various forms will be found most instructive. There is much in these articles which is not to be found elsewhere, and we recommend the volume very strongly to our readers.

Consumption: Home Treatment and Rules for Living. By H. WARREN CROWE, M.D. Second edition. Bristol: John Wright & Co. 1907.

The handy little work at present before us in its second edition has been long and favourably known as a clear and reliable guide for self-treatment and discipline for sufferers from consumption. There is nothing in it that need interfere with the medical attendant's instructions or prescriptions. We have had the pleasure of placing it in the hands of both practitioners and patients, and have been highly satisfied with the results. We are sure that our experience will be repeated by those who use this book.

Manual of Diseases of the Ear, Nose and Throat. By JOHN JOHNSON KYLE, B.S., M.D. Second edition, revised and enlarged. With 169 illustrations. London: Sidney Appleton, 1908.

The author of this work has succeeded in compressing in its moderate bulk practically every point in connection with diseases of the throat, nose and ear, as the very full index will clearly show. We almost wish that he had left out some sections in order to allow of fuller explanation in others which are of the most practical value, or that he had allowed himself more space for the elaboration of the details. The student will find this book exhaustive and highly readable, and he will be introduced in it to a good many remedies which are not referred to in the British and German books on the subject. The author, while giving his own views, does ample justice to those of others, and it is to be hoped that in his next edition he will add more exact references to their works. Unfortunately the names of the authors are in several instances misspelt, as are numerous other words, but this is no doubt only due to some amount of hurry in the correction of the proofs. Dr. Kyle has given sufficient material to fill two volumes. The book is well illustrated and got up in a very attractive form.

NEW PHARMACEUTICAL PREPARATIONS.

HANDFORD & DAWSON, Harrogate.

PELLANTHUM.—We have received from Messrs. Handford and Dawson, Pharmaceutical Specialists, Harrogate, a sample of what is termed "Pellanthum." It is described as a medicated, water-soluble, artificial skin. It is coloured to a skin tint, and when applied to broken skin forms a protective pellicle for it. It is therefore a serviceable preparation, especially for medical men who have to use all diligence in protecting small cracks or abrasions of skin. It is also most useful when mixed with other medicaments used in skin troubles, such as ichthyol, salicylic acid, or suprarenalin, all of which are much used in our specialty. In chronic eczematous conditions, either of the face or the external ear or the nasal cavities, this preparation of pellanthum and suprarenalin deserves to be brought before the notice of the specialists in ear diseases.

QUIXYL.—The same firm have also sent us a sample of an elegant preparation under the name of "Quixyl," which combines the action of quinine and salicylic acid in such a manner as to avoid depression, which is usually caused by the action of salicylic acid. Aspirin, the other ingredient in the "Quixyl," is well known in the treatment of obstinate arthritis and neuralgia.

The "HEMOGLOBINIDS" of this firm is also an elegant preparation of the extract of hæmoglobin, combined with various products, and put up in an easily digestible capsule.

ELIXIR HEROIN Co. (Handford).—This is a highly palatable preparation, containing $\frac{1}{10}$ th gr. heroin hydrochloride in each fluid drachm, with a small proportion of ipecacuanha, squills, and tolu, combined with an acidulated fruit basis. This is useful in relieving irritable cough, especially in phthisis, asthma, and bronchitis.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Published by the American Laryngological, Rhinological and Otological Society, 1908.

The Journal is published monthly, except during the winter months, when it is published bi-monthly. The subscription price is \$5.00 per annum in advance.

Entered as Second-Class Matter, October 3, 1907, at the Postoffice at New York, N. Y., under No. 100,000, authorized by Postoffice Department, October 3, 1907, and approved for mailing at special rate of postage provided for in Act of October 3, 1917, authorized by Postoffice Department, October 3, 1917.

SEPTIC THROMBOSIS OF CAVERNOUS SINUS FOLLOWING A RADICAL MASTOID OPERATION ON THE SEVENTH DAY: HISTORY OF CASE AND REPORT OF AUTOPSY

By J. A. SHELLEY, M.D.

Lexington, Ky.

The mastoiditis, the cavernous sinus with or without its associates, and the internal carotid artery, are unusual, interesting, and fatal, that I deem it of sufficient importance to report in detail a case recently under my observation.

H. W.—, aged eighteen, residing at Versailles, Ky., came into my office on July 17, uttering in the hallway a distance of twelve miles. He had every evidence of being seriously ill, quick pulse, listless expression, pallor, relaxed skin, temperature 100° F. The following history of his case was given by the attending physician, Dr. S. L. Steinman:

H. W.— came to me on Monday, July 13, 1908, suffering with throbbing pains in his head, as he expressed it; said the pain began in his ear and extended all over his head. The ear was discharging from a perforation in the drum. The discharge had been going on for about six months, he having had an abscess at intervals since childhood. He said he often had earache, but by syringing his ear with warm water he was relieved; he had syringed it the morning before he came to me. His tongue was heavily coated, his breath rancid, but no fever, no appetite, and had not slept well the night before. I ordered him to bed, and gave

him 3 gr. calomel followed by saline the next morning. I told him to use hot salt bag to relieve pain if his ear should pain, and to take $2\frac{1}{2}$ gr. veronal repeated in three hours until relieved of pain and to report to me. He had no pain or swelling over the mastoid region. He came the next morning and was so much better that he went to his work at the printing office.

"I did not see him again for two days and then found him suffering greatly, his eyes congested, an anxious expression, decided swelling, with pain over the entire mastoid region. I immediately sent him to you. The morning he started he had a temperature of 102° F., but said he felt perfectly well the two days, but began to suffer the night before he came to you."

The history given me by the patient does not differ from that given by the attending physician, except that he said he had suffered a great deal of pain behind his left ear for past two or three weeks, and had something like chills and fever most of the time. Had had attacks of earache at intervals since he was two years old, but they were relieved as soon as the ear broke and discharged. There had been no discharge for several days, and this fact he thought accounted for his pain. The object of his visit to me was to have his ear lanced.

Examination showed marked swelling behind the ear, which fluctuated on deep pressure. The swelling extended almost the entire length of the sterno-cleido-mastoid muscle. The middle ear was filled with granulations and offensive pus, there being no evidence of any remnants of the membrana tympani. The posterior superior wall of the auditory canal was sagging.

The pharynx was red, tonsils enormously swollen and follicles blocked with cheesy exudate which on pressure oozed out, resembling thick yellow pus. The naso-pharynx was filled with adenoid tissue much in appearance as the tonsils. There was also a small peritonsillar abscess on the left, from which half a drachm of pus was evacuated. The conjunctiva was slightly suffused and the ophthalmoscope showed considerable swelling of the nerve on the left side. There was no disturbance of vision. He was sent at once to the Good Samaritan Hospital where he was prepared for operation, during the preparation of which urinalysis and blood-count were made. The urine showed acid reaction, specific gravity 1028; marked excess indican; albumen small quantity; slight sediment.

Blood showed leucocytes 11,500, polynuclears 80 per cent.

When brought to operating room, two hours after first seeing

him in my office, his temperature was 104.4°F. , pulse 110. Before beginning the anæsthetic ten grains of calomel was given.

Operation.—The usual mastoid incision was made. There was a periosteal abscess at the tip; three perforations in the cortex from which pus oozed, when the periosteum was separated. The entire cortex was soft and removed with rongeurs and curette. The middle-ear cavity was filled with cholesteatomatous material, foul pus and granulations. A remnant of the malleus was found, but nothing of the incus. The aditus and antrum were small. In the tegmen antri was a large fissure, the opening of which revealed an extra-dural abscess in the middle fossa containing about two drachms of pus. The pulse became much better after evacuating pus in middle fossa. The entire lower third of the mastoid including the tip and floor were necrotic, and the inferior fossa contained pus. Pus had not burrowed under the sterno-cleido muscle. The usual canal flap was made and a large rubber tube inserted. The upper third of the posterior wound was sutured, lower two thirds loosely packed with iodoform gauze. Temperature 104.2°F. (rectal). Pulse 128, good volume. Duration of operation one hour ten minutes. Little nausea and vomiting followed the anæsthesia and operation. No pain was complained of after the operation. Patient slept well—without a sedative—and had a relish for food. Insisted that he was well enough to get out of bed. Eight hours after operation magnes. sulph., 1 oz., was given. There being no result from this in two hours a high enema, consisting of four pints of soap-suds, was given, resulting in passing of small quantity of most offensive dark faecal matter, with a decided putrefactive odour. Ten hours later castor oil, 1 oz., was given, and three hours later a very large quantity of faecal material, with a number of scybalous masses passed.

II. The points of special interest in the case after the operation were: (1) The temperature never dropped below 99.6°F. (2) The obstinate sluggishness of the bowel requiring heroic doses of cathartics aided by enemas to produce any result. (3) The continuance of high temperature and presence of excess of indican in the urine, notwithstanding a clean wound, free purgation, and use of intestinal antiseptics. (4) From a surgical standpoint the wound was as nearly ideal as could be desired, there being no evidence of pus, phlebitis, or cellulitis. (5) The pharyngitis and tonsillitis yielded readily to treatment.

There was at no time mental hebetude, rigors, or excessive sweating, and no marked fluctuations in temperature.

On the third day after operation the leucocytes had decreased to 8000, with slight increase in the hæmoglobin. No differential count was made. Not being able to account for the continued fever, Dr. J. R. Estell, of the medical staff, was called, who, after thorough examination of lungs and abdominal organs and finding the Widal test negative, reported he could not account for the persistent high temperature unless it were due to intestinal toxæmia, and the treatment for eliminating this was continued.

On the fourth day the stitches were removed and the wound found in good condition. The temperature not having improved, on the seventh day it was decided, after consultation with Drs. Estell and Bradley, to open the wound entirely and search for pocket of retained pus.

The patient was taken to the operating room, and, without an anæsthetic, the entire wound was carefully examined, but nothing objectionable was found. However, he complained of being very nervous and frightened, which was evidenced by his expression and pulse, though he had suffered no pain. In reply to my inquiry why he was so nervous, he replied that "he feared all the time he was being wheeled into the operating room that he would roll off the carriage."

I noticed at the same time an unnatural expression about the eyes: they were somewhat suffused and conjunctiva slightly injected. But he had no pain or disturbance of vision. He ate his supper with a relish, and slept well until 2 a.m., when he awoke, called his nurse, and asked for a drink of water. Before she could hand it to him, he threw his hand to his left eye, complained of great pain, and insisted that something had got into the eye. On examination the nurse said there was nothing in the eye, it was only a little red in the inner corner, and she would bathe it. All the while the patient insisted that his eye was "popping out." This being apparently true the nurse hastily called the superintendent, who saw at a glance the peculiar and alarming condition. Within a very few moments the conjunctiva became swollen, the eye-ball protruded and immovable, and the lids œdematous.

I was telephoned for at once, and when the symptoms were told me, replied: "The case is one of septic thrombosis of the cavernous sinns, and his condition is hopeless." My diagnosis was made by exclusion largely, aided by the fact I had seen one case, with symptoms similar to this, with Dr. E. C. Ellett (*Journ. A. M. A.*, December 17, 1904), of Memphis.

Upon my arrival at his bedside an hour or two later I found

him suffering no pain, but complaining of feeling tired. Pulse 118; temperature 103.8° F. There was marked exophthalmos of both sides, more pronounced on the left; the orbit was tense, conjunctiva œdematous, the eye-ball was fixed, the pupils partially dilated, reacting slowly to light. Ophthalmic examination negative. There was no distortion, phlebitis, swelling, or evidence of inflammation about neck, face, or naso-pharynx. Speech was perfect and movement of tongue normal. Mind clear and alert.

He described the progress of his case to the consultants (Drs. G. P. Sprague, D. Barrow, W. O. Bullock, B. F. Van Meter, T. H. Kinnaird, and R. J. Estell) from the beginning, emphasising the point that he had no pain since the operation, but felt so terribly tired. He was very restless, and when left to himself almost constantly muttered, "Oh, I'm so tired." Blood count: Leucocytes 19,600, polynuclears 84 per cent. Surgical procedures for the relief of the existing condition were deemed useless, and in twenty-three hours after the pain in the eye was complained of the patient died. The mental faculties were unclouded till within two hours of death, and at no time did he complain of pain.

The autopsy was held by Dr. G. P. Sprague one hour after death, and the following is his report:

"Autopsy (3 a.m., July 25th).—No external abnormality, except as above noted. Only opened the skull cavity. Moderate amount of dark fluid blood escaped when opening. Dura firmly adherent to bone along the anterior half of the median line; normal otherwise. Pia normal, except for two small areas of inflammation along the longitudinal fissure, involving parts of the superior frontal and anterior central gyri. This was an inflammation involving both the pia and arachnoid and the cortex, but there was no suggestion of exudate. Lateral sinns of the entire left side filled with soft clot. Left cavernous sinus filled with a firm clot, with a very small clot in the right cavernous sinns. There was no pus in the nasal accessory sinuses. The mastoid wound was clean throughout."

The autopsy being limited to the cranial cavity did not show conclusively the source of the infection and thrombus of the cavernous sinus, but my conclusion is that its association with the middle ear and mastoid disease was a coincidence. The lateral sinus was not involved, nor was there evidence of infection having occurred by way of the superior petrosal sinus. It probably extended through the pterygoid plexus as a result of the peri-

tonsillar abscess associated with greatly enlarged and acutely inflamed tonsils.

The gravity of the prognosis is such—there being only two or three authentic septic cases which have recovered—that so eminent an authority as Macewen states that all infective cases of thrombosis of the cavernous sinus end fatally. Since there is nothing to lose, but everything to gain by operative measures, I should in a similar case resort to the operation advised by Hartley (2) and Dwight (1) in preference to one advised by Germain and Luc, *i. e.* “making a horse-shoe-shaped flap apex upward, carrying the flap as low as possible so as not to disturb the zygoma, the anterior edge of the flap being $2\frac{1}{2}$ in. posterior to the external canthus. The field of operation is practically the same as that for resection of the Gasserian ganglion. After the temporal bone is trephined as low as possible and the opening enlarged by bone forceps, the dura is incised and the temporal lobe held upward, the cavernous sinus is palpated, incised and clot removed, and drainage instituted.”

Other illustrative cases will be found in the list of references appended below.

REFERENCES.

- (1) *Boston Med. and Surg. Journ.*, May 1, 1902.
- (2) *Annals of Otology*, vol. xi, p. 520.
- (3) *Ibid.*, vol. xii, p. 449.
- (4) *Ophthalmic Record*, 1907, p. 506.
- (5) *Archives of Otology*, vol. xxxii, p. 419.
- (6) *Journ. A.M.A.*, December 17, 1904.
- (7) *Archives of Ophthalmology*, vol. xxxv, p. 373.
- (8) *Ibid.*, vol. xxxvii, No. 4, 1908.

NOTES UPON TWO UNUSUAL FRONTAL SINUS CASES.¹

BY J. PRICE-BROWN, M.D.

(1) *Case of Chronic Purulent Frontal Sinusitis with External Fistula for nearly two years; Operation; Recovery.*

February 28, 1907.—Miss M. F—— was referred by Dr. Black, of Paisley, for treatment.

History.—In September, 1904, two and a half years previously, while attending college in Toronto, she had an attack of fever

¹ Read at the Annual Meeting of the American Laryngological Association, Montreal, June, 1908.

resulting in frontal abscess on the right side. This was lanced by the attending physician in consultation. There was a free discharge of very foul pus. Under treatment healing took place in a month and she went home to Paisley. Toward Christmas swelling of the forehead returned, and Dr. Black reopened it. From that time until the following March discharge was almost constant, and she was brought to the city again for further advice. The consultants decided that it was a case of frontal sinus disease requiring immediate operation. Consequently, under general anæsthesia, it was opened through the floor extending up into the superciliary ridge. An opening was also made downwards through the region of the fronto-nasal passage into the nose, and an attempt was made to secure nasal drainage. The result was not satisfactory. The fronto-nasal passage closed and the external opening refused to heal. The discharge would sometimes almost cease, and again for days come away more freely. Four months later the sinus was still open. Then, to secure more efficient drainage and lavage, the doctor inserted a short rubber tube through which the cavity was washed out externally. It was worn for nearly a year and then discarded. Subsequent to this the patient would sometimes probe the cavity to obtain a better outlet to the pus and the doctor would make the passage freer with the lance. Finally, after having almost continuous discharge over the face for two years, a sudden aggravation of all the symptoms occurred and the patient was referred to me.

Examination.—Left eye almost closed, the eyelid swollen and inflamed, the swelling extending upwards over the superciliary ridge and including the inner canthus. The surface beneath the ridge was irregular, pultaceous, and darkly suffused in colour, with pus exuding from a point immediately over the site of the sinus operation. There was a good deal of pain over the region accompanied by headache. An X-ray picture did not reveal much save a darkened shadow on the affected side, and the opening in the bony wall from the previous operation upon the sinus; there was no shadow in the maxillary region.

Intra-nasally there was little if any pus visible, but the middle and inferior turbinals on that side closed up the passage. The patient was placed in the Western Hospital for treatment.

As preparatory operation the anterior end of the middle turbinal and a portion of the inferior turbinal were removed. This had to be done under general anæsthesia, as the young lady was too nervous to submit to any operative work under local anæsthesia.

How to operate upon the sinus was the next question. I was unwilling to attempt a radical operation after Coakley's plan for cosmetic reasons. Killian had not yet visited the country, and at that time I knew little of his operation. At the same time I was strongly impressed with Fletcher Ingals's intra-nasal treatment and use of gold tubes. As in his cases the desideratum of nasal drainage was secured, something which Killian now insists upon as essential, the thought struck me that a gold tube inserted from the frontal sinus downward through an enlarged fronto-nasal passage might be equally effectual. The external wound could then be closed, irrigation would be practised through the tube, and the latter eventually removed through the nose. The operation was done under general anaesthesia. The eye-brow was not shaved. The incision was made through the centre of the eye-brow from the middle inwards to the median line. The periosteum was then raised directly upwards over the inner end of the sinus, and a rectangular piece of the outer table chiselled out above the superciliary ridge, the long direction being upwards. The object was, while leaving a minimum of deformity, to permit a straight drill to be passed downwards and backwards to destroy the anterior ethmoid cells, the incision and the removal of the bony wall being entirely above the site of the former surgeon's operation.

A quantity of pus and blood welled out on opening the sinus; the cavity was curetted and freely irrigated. Then, the infundibular point being found, successive hand drills were used until a large one could be inserted and a free entrance made into the nose, external to the septum and in the region of the anterior end of the middle turbinal. A curved forceps was then passed downwards through the passage, and after repeated irrigations this gold tube was inserted from above.

The wound was at once closed. It healed in a very few days by first intention, but to my chagrin I found it impossible to irrigate the sinus through the tube as intended. The girl had passed through so many operations that she became hysterical the moment an attempt was made to pass any instrument, even the end of a syringe, into the nasal passage. Another point—while the discharge from the old fistula, which I had not disturbed at all, materially lessened, it did not cease, while it still continued to be inflamed and tender.

Hence, twenty-three days after the insertion of the gold tube I operated again. This time I made a similar incision to the

former one, parallel to it, but below the eyebrow, and directly through the centre point of discharge. From the opening two or three bits of dead bone were taken. The outer tissues were then raised over the entire extent of the original operation. The gold tube was removed from above and a large rubber tube inserted in its place, the upper end being curved on itself to lie on the floor of the sinus and the lower end extending beyond the nostril. The outer incision was then closed as before.

This time the result was all that could be desired. Although the tissues through which the incision had been made were inflamed, darkly suffused and spongy, the healing was again by first intention.

The sinus was for a time irrigated regularly twice a day with warm sterilised water. The discharge gradually diminished and in a few weeks it practically ceased when the tube was removed.

From then until now there has been no return of the disease and the patient is quite well. This I think is due to the fact that the wearing of the gold tube for twenty-three days secured permanent and effectual drainage from the affected cavity.

A photograph, taken last month, one year after the operation, indicated how small a deformity has resulted from the operation.

(2) *Case of Frontal Sinus Disease ; Operation ; Recovery.*

History.—In April, 1907, Mr. J. F.—, aged thirty-five, married, received a severe blow from the head of a horse; the point of impact was that of the right temple at the outer end of the region of the frontal sinus. After some weeks this was followed by a swelling beneath the right eye-brow and tenderness on pressure. Later on both these symptoms subsided. In the following August, also, he had the misfortune to strike his forehead against a stone wall, resulting in an abscess which was lanced. In due time this healed, leaving a surface depression.

Early in January, however, his head began to be sore, followed by pains in the region of the frontal sinus, shooting backward toward the occiput. This was accompanied by the sensation of fulness and pressure in the forehead on that side, the condition being always aggravated at night-time. Toward the end of January, swelling beneath the right eye-brow also returned, with marked tenderness on pressure over the central portion of the sinus, while sleep at night became almost impossible. During this period the patient was under Dr. Wilson's care, but medical

treatment failing to afford relief, on February 22 he referred him to me, and he was placed in the Western Hospital.

Examination.—Head feels hot continually, temperature ranges between 99° and 100° F.; soils two or three handkerchiefs a day from right nasal hæmorrhage; complains of intolerable bursting head pains and entire absence of sleep. There is also drooping of tissues beneath the floor of the sinus and much tenderness on pressure.

The right side of the septum was much thickened and spongy; the anterior end of the middle turbinal also was enlarged. Both were hæmorrhagic, but there was very little pus visible.

My first effort was to give relief by intra-nasal treatment, so under cocaine and adrenalin I reduced the hypertrophied tissues, but failed either to penetrate the infundibulum, or give relief to the frontal sinus.

So five days later, under chloroform anæsthesia, assisted by Dr. Wilson, I did a modified Ogston-Luc operation, that is, after chiselling the usual opening into the frontal sinus above the superciliary ridge, instead of merely dilating the fronto-nasal passage and putting in a small drainage-tube, I drilled a larger opening, destroying the anterior ethmoid cells, and placed a rubber drainage-tube from the floor of the frontal sinus down through the nasal passage and out through the nostril, as in Case 1.

On opening the sinus there was very free hæmorrhage accompanied by purulent matter. The blood-vessels were enlarged. The mucous membrane, particularly on the anterior wall, was swollen and spongy, that on the cerebral side of the cavity being little affected. After curetting away freely all adventitious tissue, the sinus was washed out with hot boracic acid solution, then swabbed with peroxide of hydrogen, then washed again; the drainage-tube was next inserted and lavage repeated both from above and below; and finally, the wound was closed by silk sutures and padded and bound.

A swab was taken from the sinus at the time of operation. Examination revealed pus cells mixed with blood. Another swab taken ten days later from the sinus quite free from blood proved the disease to be one of pure pneumococcus infection.

Points with regard to Temperature.—Immediately before the operation the temperature was 99·2° F., three hours later it was 101·2° F. and still two hours later at eight o'clock in the evening it had risen to 104·5° F., and was accompanied by delirium.

Throughout this night the patient could with difficulty be kept in bed. In the morning the temperature dropped to 101.2° F.; the delirium was over and did not again appear. Still the second night the temperature rose to 103.8° F., subsequent to which time it was almost invariably normal.

The respiration throughout was above normal, always between 20 and 25 per minute. At the time of operation it was 24 per minute.

The pulse also from the first was rapid, running from 100 to 120 per minute.

Possibly the rapid pulse and respiration might be due to a general pneumococic infection with local focus within the frontal sinus. With regard to after-treatment, the intention was to wash out the sinns regularly through the wide drainage-tube by means of a small tipped instrument. This was carried on effectually for some days, but due to the high temperature of the first forty hours the wound did not heal by first intention. The stitches loosened and were removed and the whole wound opened.

Granulation commenced and the lavage was then done from above. Sixteen days after the operation the tube was removed through the nose, and as the sinus wound was closing a small rubber tube was placed at its inner end and the lavage continued. Latterly no other treatment was followed, save to cover over the small opening of the wound and tube with adhesive plaster, to be replaced after each irrigation. The boracic solution came through the nostril freely and was soon free from pus.

By April 16 the discharge from the sinus had ceased, so the little tube was removed, irrigation dispensed with, and the wound allowed to close, the patient being warned against all nose-blowing until entire healing had taken place.

One point is worthy of note as brought out in this case, that is, the advantage of a reversed valsalva in cleansing the fronto-nasal passage during the process of healing. While the little tube was *in situ* in the forehead, although there was no external discharge whatever, the air would whistle through the passage with each forcible effort to draw backwards, and with the effort any mucus lodged within the passage would be removed. When the little tube was finally taken out the valsalva drawing backward was forbidden, in order to favour surface healing. The present condition of the patient with a healed sinus is well marked in a photograph, which was taken only a few days ago.

In closing I might make one other remark which applies to both

of these cases. Although the anterior cells were engorged, the middle turbinal pressing tightly against the septum, yet in neither case was there any indication of the antrum of Highmore being affected.

TWO POINTS IN THE DEVELOPMENT OF THE MIDDLE EAR AND ITS CONTENTS.

BY MR. THOMAS GUTHRIE, M.A., M.B., B.C. (CANTAB.), F.R.C.S. (ENG.),
Aurist and Laryngologist to the Victoria Central Hospital, Liscaul.

ALTHOUGH known to Fabricius the processus longus or gracilis of the malleus has been especially associated with the name of C. Folius, who lived in the first half of the seventeenth century. After him it is known as the Folian process. He described, however, only the small remains of the process in the adult, and the long, slender, bony rod which is found in the newly born was first described by the German anatomist Ravius.

The connection, in the early stages of development, of the proximal end of Meckel's cartilage with the head of the malleus is well known, and on the authority of Reichert, Parker, Balfour, and others it has been stated that during the later stages of foetal life, while the distal part of Meckel's cartilage atrophies and disappears, the proximal portion ossifies and persists as the processus longus of the malleus. This view of the origin of the processus longus appears to have gained very general acceptance in this country. On the other hand, Meckel himself stated that the process arose as an independent membrane bone, and his observations have been supported by other anatomists, and notably by Broman, who made a detailed study of the development of the auditory ossicles.

The writer has investigated the matter chiefly by means of serial microscope sections of temporal bones at a number of different stages of foetal life, and has reached the following conclusions: The Folian "process" is at first quite separate from the malleus. It appears at about the end of the second month of foetal life as a rod-shaped membrane bone, which lies below and slightly internal to the proximal part of Meckel's cartilage. At this age the malleus is entirely cartilaginous. The proximal end of the rod does not at first reach the malleus, but later becomes applied to it about the region of the neck, at which point ossification is proceeding. Finally, direct bony union takes place between the "process" and the malleus.

Meckel's cartilage is at first attached to quite the upper part of the malleus. Owing, however, to the relatively rapid growth

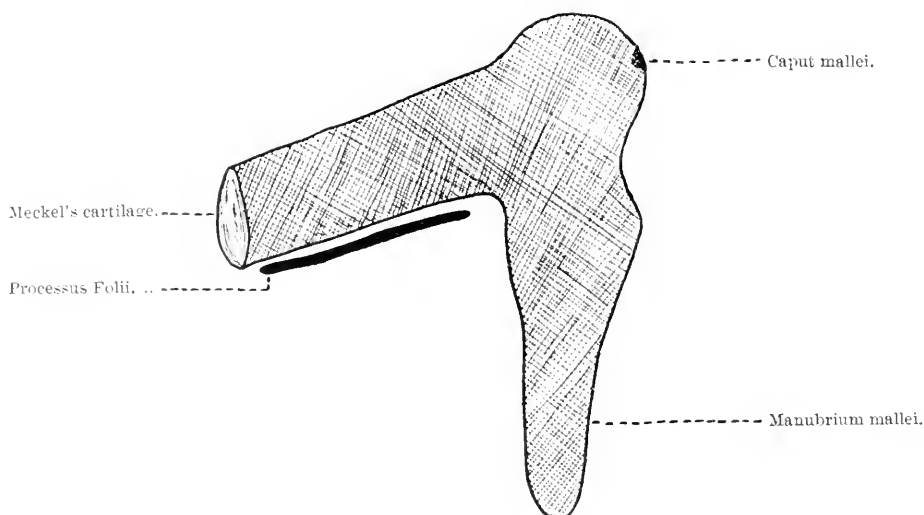


FIG. 1.—Malleus and Folian process at about two and a half months of fetal life.

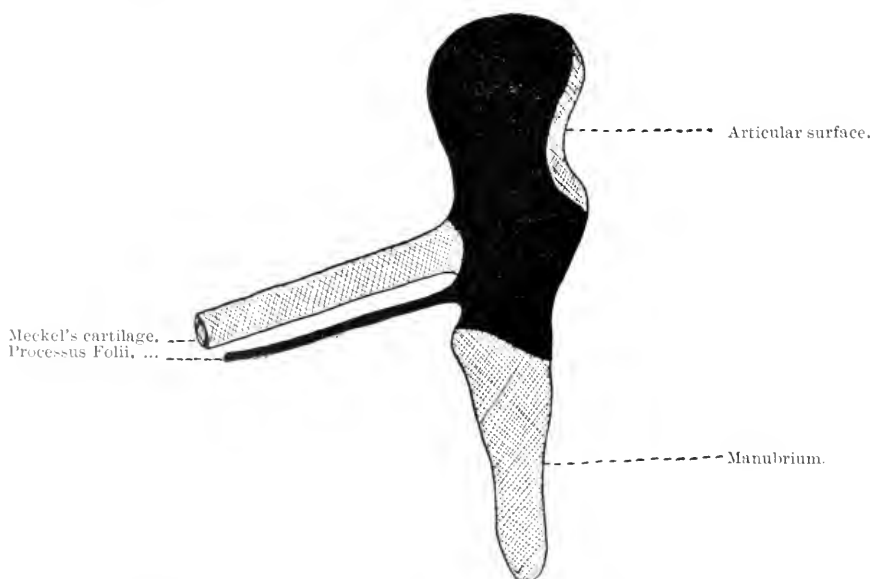


FIG. 2.—Malleus at about six months of fetal life. (Bone is represented black, cartilage by cross-hatching.)

of the head of the malleus the point of attachment of the cartilage appears to pass downwards and eventually to reach the neck.

Towards the end of foetal life this proximal part of Meckel's cartilage becomes shrunken and atrophied, and eventually is incorporated in the anterior ligament of the malleus and lost. No part of it undergoes ossification. The Folian process, on the other hand, is well developed, and forms an important feature of the malleus

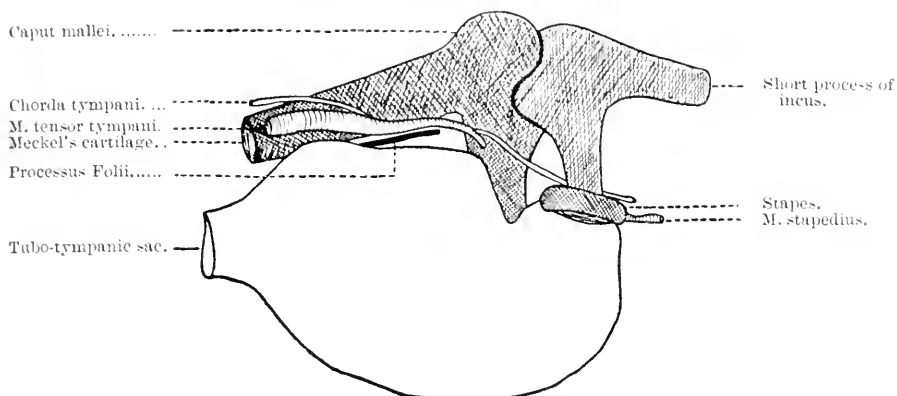


FIG. 3.—The tubo-tympanic sac and auditory ossicles at about two and a half months of foetal life.

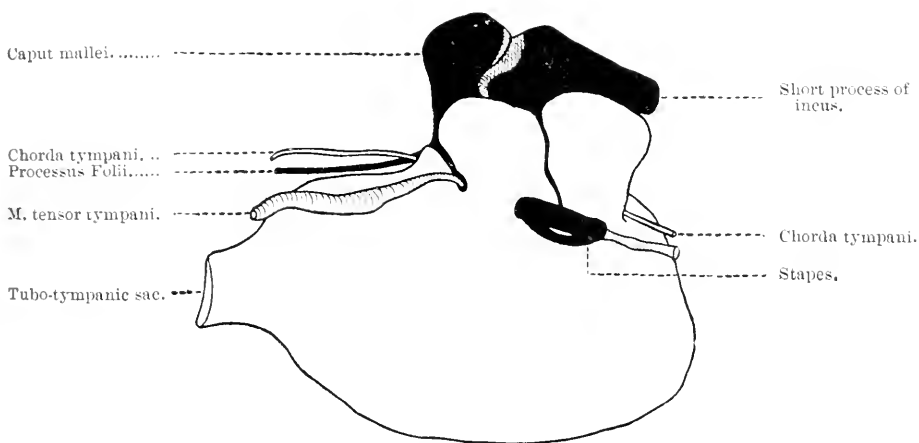


FIG. 4.—The tubo-tympanic sac and auditory ossicles at about six months of foetal life. (Bone is represented black, cartilage by cross-hatching.)

during the second half of foetal life and for a considerable time afterwards. In the adult, however, the process is found to have largely disappeared and to be represented only by a small projection on the anterior border of the neck of the malleus.

Morphologically the process is interesting, as it certainly represents one of the membrane bones which ensheath Meckel's

cartilage in most of the lower vertebrates. Its vestigial character is indicated by its almost total absence in the adult.

Some confusion has been manifested as to the process by which the cavity of the middle ear is developed at the expense of the embryonic gelatinous tissue, which at first fills the greater part of the middle-ear cleft.¹ In early foetal life the tubo-tympanic cavity extends only to quite the lower part of the tympanum, the remainder of the middle-ear cleft being occupied by gelatinous tissue. As development proceeds the cavity gradually enlarges. A pouch passes up between the handle of the malleus and the long process of the incus. This pouch later gives off two pockets, one of which passes up behind and one in front of the head of the stapes, while a third diverticulum from the main sac passes up in front of the tendon of the tensor tympani muscle. Finally, as the walls of the sac become applied to the walls of the middle-ear cleft several other pouches and recesses appear, such as the recess of the fenestra rotunda and the recess of the sinus tympani. A large diverticulum also passes backwards and upwards and fills the antrum.

Although at the end of foetal life there are still remnants of the gelatinous tissue, especially about the antrum, most of it has at this age disappeared so that the walls of the middle-ear cleft are lined by mucous membrane.

The growth, therefore, of the tubo-tympanic sac at the expense of the embryonic gelatinous tissue is a gradual one, and begins quite early in foetal life, but proceeds more rapidly during the later than the earlier stages of development. At the end of foetal life only remnants of the gelatinous tissue are present in the shape of localised thickenings of the mucous membrane, and at this age the mucous lining of the middle-ear cleft (Eustachian tube, tympanum, and antrum) is complete.

¹ By "middle-ear cleft" is meant the space bounded by the *cartilaginous* and *bony* walls of the Eustachian tube, tympanum, and antrum.

NEW WORKS.—Two recent additions to the literature of our specialty have been forwarded to us by the publisher, Alfred Holder, of Vienna and Leipzig. The one on "The Brain and the Accessory Sinuses of the Nose" ("Das Gehirn und die Nebenhöhlen der Nase") is from the pen of Professor Onodi, of Budapest; the other, by Dr. H. E. Kanasugi, consists of "Contributions to the Topographico-Chirurgical Anatomy of the Mastoid Region" ("Beiträge zur Topographisch-Chirurgischen Anatomie der Pars Mastoidea").

BRITISH MEDICAL ASSOCIATION.

Meeting at Sheffield, Wednesday, July 29, 1908.

OTO-LARYNGOLOGICAL SECTION.

*Abstract of Proceedings by DR. DAN MCKENZIE.**President, DR. WILKINSON, Sheffield.**(Continued from page 514.)**Thursday, July 30, 1908.*DISCUSSION ON INTERCRANIAL COMPLICATIONS OF MIDDLE-EAR
SUPPURATION.

OPENED BY MR. CHAS. A. BALLANCE, M.V.O.

MR. BALLANCE read a very exhaustive paper which dealt with the subject comprehensively.

Each complication formed a fairly definite picture made up of different symptoms, none of which by itself could be looked upon as diagnostic.

Inflammation of the dura apart from abscess might cause no symptoms whatever. In *extra-dural abscess* there was headache on the same side, and there might be tenderness on the side of the skull over the lesion. Pyrexia was usually present in the form of a slight evening rise. The abscess was generally found over the tegmen, but it might occur in the neighbourhood of the sinus or petrous portion. If closed it became eventually an inter-, or intra-dural abscess. It might communicate with the middle ear, or in the case of the sinus might discharge into the neck, and on the posterior surface of the petrous portion occasionally passed into the cervical region through the foramen lacerum posticum. Retro-pharyngeal abscess in like manner might arise from extra-dural abscess. In a case recently under his care there was a sinus at the angle of the jaw which led to the floor of the tympanum.

Intra-dural abscess was not distinguishable from brain abscess.

The constant symptom of *venous infection* was fever; only in rare cases was it absent. This complication should be suspected when fever appeared in acute suppuration of the middle ear which was discharging freely, or after the discharge had cleared up. In the

case of children other causes of fever had to be excluded, for instance, suppuration in the middle ear on the opposite side. Among other symptoms of sinus infection he mentioned pain in the ear, swelling of the mastoid emissary vein and metastasis. Early diagnosis was of supreme importance in infection of the cavernous sinus, the symptoms of which were venous obstruction and ophthalmoplegia, œdema of the eyelids, and swelling of the retinal veins.

Meningitis.—The general symptoms were headache, vomiting, and rigidity of the neck, disturbances of the intellect, and perhaps convulsions. Among other signs occasionally present were mentioned Kernig's sign, facial paralysis, optic neuritis, and irregular pulse.

Lumbar puncture was of great importance. If the fluid coagulated spontaneously, or if polymorphs were present in large numbers, then meningitis was certainly present. The absence of the tubercle bacillus or other organisms might occur and yet meningitis be present. In the case of meningitis serosa puncture might be repeated for therapeutic reasons, but removal of the focus was imperative. There were two forms of serous meningitis—malignant and mild. In the former no pus formed because there was no reaction; in the latter recovery followed operation. The usual symptoms were optic neuritis, headache, etc., and they were frequently removed by lumbar puncture.

Brain abscess.—The symptoms were those of increased intracranial pressure, with focal symptoms. In the symptoms of temporo-sphenoidal abscess he included paralysis of the "naming centre," optic neuritis, and facial paralysis of the opposite side. In cerebellar abscess there were disturbance of equilibration, vomiting, loss of flesh, and optic neuritis. There were frequently present homolateral disturbances of the musculature and deep reflexes. Nystagmus was frequent and deviation of the eyes, sometimes skew-deviation. It never caused sensory disturbances nor contra-lateral hemiplegia. Brain abscess might form slowly and was then encapsuled, or rapidly when it possessed no capsule.

The symptoms of acute abscess were:

Pyrexia, headache, and vomiting due probably to circumscribed meningitis.

In the so-called "latent stage," when there were pain in the head, signs of oppression, pallor, loss of appetite, giddiness, vomiting, and a slight rise of temperature in the evening, the blood-count showed leucocytosis.

Then followed the "manifest stage" with symptoms of high

intra-cranial pressure, and finally the "terminal stage" with coma from increasing pressure by the rupture into the ventricles, etc.

The first and last stages occupied but a few hours; the second and third stages were of longer duration.

Cerebellar abscess was occasionally latent, as, for instance, in typhoid and influenza. In the latter case there might be no external sign of mastoid inflammation and the patient might die before a correct diagnosis was made. There were two groups—one in which the patient appeared to be seriously ill, and the other in which the gravity of the case was unsuspected. In the first the onset was sudden and there was a clear history of suppuration in the middle ear; only in very few was there no history of suppuration, and the discharge was so slight as to escape notice. In these cases question arose whether the symptoms were due to the ear disease alone, to abscess, or to some acute illness. Slight disease in the temporal bone was frequent, and in children it might often be the case that the membrane appeared normal and there was no history of purulent discharge. In the second class the patient was not dangerously ill, and the symptoms were those of ingravescent intra-cerebellar disease. Examination showed an alteration in the pulse, ataxy, slight facial paralysis, and slight alteration in the deep reflexes. Examination should be made daily and thus a correct diagnosis would be arrived at. There was great danger, even when the symptoms were not well marked, of sudden death, and it might be said that death was occasionally hastened by incomplete operations in the region of the mastoid. In some acute cases diagnosis was easy, in others it was difficult.

Blood examination and examination of the cerebro-spinal fluid were of great value, and in many of these cases vaccine treatment might be tried. Mastoid operation should not be delayed unless it seemed clear that the symptoms were due to some cause other than the ear. It frequently happened that on opening the mastoid it was found necessary to extend the operation in the direction of the disease towards the cerebellum, etc. Occasionally acute symptoms arose which were due to toxæmia alone and not to a brain lesion. Many of the cerebellar signs were simulated by labyrinthine disease. In the latter caloric nystagmus was absent in the affected ear.

Among the symptoms which could not be attributed to bone disease alone were rigors with oscillating temperature.

Thrombosis of Lateral Sinus.—It was at times difficult to settle which ear was to blame. Pain, tenderness over the mastoid or

jugular vein, enlarged glands at one side were guides of value, or it might be that an examination of the membrane showed that one side was worse than the other. In cases of suppuration of the middle ear it was at times difficult to decide whether the acute symptoms were due to the ear or to the onset of some other acute disease, such as an infectious fever. In the last, one looked for the signs of the disease in the skin, etc. But in this case also septicæmia might supervene, due to lighting up of old disease in the ear, in which event an operation was necessary. In the puerperal state pyæmia might occur, and the uterus be incriminated in the supposition that the infection arose in that organ, and yet the ear might be responsible for the illness. Some difficulty occasionally arose in septic wounds of other regions. A case had been reported where the mastoid operation had been performed uselessly under the impression that the focus of infection was situated in the ear. Much difficulty arose when the intra-cranial complications were mixed, symptoms of one lesion being replaced by the symptoms of others. In such cases the early history was of much value in arriving at a correct decision. It was impossible to diagnose when brain abscess was multiple. Tubercular meningitis might resemble meningitis of otitic origin and marantic thrombosis was also an occasional cause of error, but as a rule in otitic cases symptoms were gradual in their progress, while in vascular cases the phenomena appeared suddenly.

Modern Methods were of value, but chiefly only in corroborating other evidence.

Regarding *leucocytosis* in the blood, when present it was valuable evidence, but there were some cases of meningitis in which there was no increase in the white cells. If the leucocytes were few in number and the general symptoms severe the outlook was bad, and operation was not very hopeful; possibly it might be advisable to induce artificial leucocytosis in such cases.

Lumbar Puncture.—Cerebro-spinal fluid was examined, first for cells. If mononuclear leucocytes were the more numerous the disease was slow or subsiding. If, on the other hand, the polymorphs were in excess, the disease process was rapid. Turbid cerebro-spinal fluid with many polymorphs was an undoubted indication of meningitis.

Bacteria.—The tubercle bacillus might be found in flakes of lymph in the cerebro-spinal fluid.

Albumen.—The presence of a large quantity of albumen was a sign of severe inflammation, as a case reported by Graham Forbes had shown.

The discharge from the external ear should be examined for cells and bacteria. The most common cause of acute suppuration was the pneumococcus, especially in children.

In conclusion the speaker said that there were undoubtedly many gaps in our knowledge of the general and localising symptoms of the intra-cranial complications of middle-ear disease.

MR. A. L. WHITEHEAD said that Mr. Ballance's paper had left little for him to say. He drew attention to the occasional occurrence of sudden profuse discharge from the external ear in extradural or cerebral abscess. He agreed with the previous speaker that a remittent temperature was the most prominent symptom in venous infection. Vomiting was not a frequent sign in children, and rigors might be entirely absent if an aseptic clot bounded the septic focus. Pain was usually marked in all complications, and persistent headache was a common symptom. Optic neuritis was most frequently present in cerebellar cases, less frequently in meningitis, and least of all in temporo-sphenoidal abscess. Lumbar puncture was undoubtedly of value, but unfortunately it often failed to give information early in the course of a case when information was most desired. Later on, if of less value from the diagnostic view-point, it was nevertheless helpful in the treatment, particularly if the case was one of meningitis serosa or even of early purulent meningitis. In the diagnosis of temporo-sphenoidal abscess he had found that paralysis of the naming centre was more frequently present than had been generally supposed. In the case of cerebellar abscess nystagmus was also of great importance, and was also more frequently present than had been thought. Ataxy of the limbs, especially of the arms, was a symptom of much value. He expressed the opinion that careful examination would elicit symptoms at an early stage, and thus operation could be undertaken before the patient had passed into a hopeless condition.

In all cases of typhoid or scarlet fever in children with otorrhœa, suspicion of complications should arise if the convalescence were protracted and the patient lost flesh.

Regarding the blood examination, leucocytosis might be present when the disease extended to the bone and where there were no intra-cranial complications at all, but the presence of streptococci in the blood was an indication that the disease had extended beyond the bone, usually to the lateral sinus.

It ought to be known that it was possible for the severest

complications to arise without giving any evidence of their presence on the external surface of the mastoid.

Persistent headache with obscure mental symptoms should in all cases lead to examination of the ear, because patients were frequently ignorant that there was any discharge.

Dr. SYME (Glasgow) had met with difficulties in patients convalescing from diseases like enteric, etc., and related a case in which such a difficulty had arisen.

Dr. STCLAIR THOMSON (London) said that we all knew of the association of persistent headache with otorrhœa, but he wished to draw attention to the fact that symptoms referable to the ear were occasionally due to disease in the post-nasal space and to suppuration in the maxillary antrum or sphenoidal sinus. Mr. Ballance had spoken of cavernous sinus thrombosis, but surely this was most frequently due to infection from the nose, less frequently, he thought, to infection from the ear, and still less frequently to infection through the ophthalmic vein. In some cases the mastoid had been opened under the impression that the disease was in the ear, when it was in the sphenoidal sinus. Those nasal complications should not be forgotten.

Dr. ANDREW WYLIE (London) said it was difficult to decide whether intra-cranial abscess was in the middle or the posterior fossa. Where the labyrinth was affected the posterior fossa was the most likely seat of intra-cranial lesion.

Mr. HUNTER TOD (London) said that it was necessary to decide, first of all, which side was affected, and, secondly, what lesion was present. In acute mastoiditis the most difficult cases were those with no external symptoms, where it might readily be supposed that the illness was due to some other disease. If there was no indication of disease in the ear, and fever was present, the mastoid process should be opened, and it would be found that in most cases the source of the trouble was here. We should not wait too long or until swelling appeared on the mastoid. If there were rigors the lateral sinus should be exposed. This was occasionally infected through the floor of the tympanum. He had frequently to decide whether the symptoms were due to malignant endocarditis or to disease of the lateral sinus. Occasionally it happened that uræmia appeared in a case of suppuration of the middle ear, and the symptoms were ascribed to the disease in the ear.

Dr. H. TILLEY (London) said diagnosis in acute diseases was difficult, especially in influenzal cases. He narrated a case in which there were present otorrhœa, coma, and dilated pupils, and in which operation disclosed only slight disease in the antrum. The lateral sinus was normal and the patient got quite well. He asked whether such symptoms ever passed off without operation. In any case of difficulty the local symptoms should be taken along with the general symptoms.

Mr. STUART-LOW (London) emphasised the value of repeated lumbar puncture. He thought that the general practitioner should learn to employ this method of diagnosis. The most difficult cases were those where complications were multiple, and he narrated a case in which the symptoms pointed to one side, with the result that the temporo-sphenoidal lobe on that side was opened and nothing found. The patient died, and at the *post-mortem* a temporo-sphenoidal abscess was found on the other side. Thus the one side had proved a decoy. Optic

neuritis, he understood, was not a reliable sign, as it might occur in meningitis over the roof of the attic.

Mr. WAGGETT (London) asked if there was any method of diagnosing with certainty rupture in the lateral ventricle, as he had had a case where the lateral ventricle on one side had been opened after rupture and the patient did well for ten days and then died. At the *post-mortem* pus was found in the lateral ventricle on the other side.

Dr. STODDART BARR (Glasgow) advocated examination of the fundus oculi in all cases of suppuration of the middle ear, for thereby valuable information could be obtained regarding the impending onset of intra-cranial mischief. Engorgement and twisting of the retinal veins he looked upon as an early danger signal in otorrhœa. In cases in which these signs were visible it would be found that frequent attacks of headache, vomiting, and sometimes pyrexia occurred.

Dr. LOGAN TURNER (Edinburgh) thought that the subject under discussion in the present debate might form material for a conjoint meeting of several sections of the Association, since it was too frequently supposed that the only signs which attracted attention as indicating serious aural disease were cedema and pain over the mastoid. Eye symptoms were more often absent than present. In nine cases of intra-cranial complication under his care, seven showed no evidence whatever in the fundus of the eye. Frontal pain was a common symptom in cerebellar lesion, and paresis on the same side was of frequent occurrence. Loss of the naming power was a valuable sign in distinguishing between temporo-sphenoidal and cerebellar abscess. In six cases of temporo-sphenoidal and subdural abscess this symptom was present, and in two cases of cerebellar abscess the symptom was absent. In all these instances the lesion was on the left side.

Dr. BRONNER (Bradford) alluded to the difficulty of deciding when papillitis was present. There were a number of cases of ear disease in which rigors occurred but in which the sinus when opened up was apparently normal. In these cases the jugular should always be tied. It seemed to him that intra-cranial complications were fewer nowadays than they used to be, and this he attributed to the early and successful treatment of ear disease.

Dr. WALKER DOWNIE (Glasgow) related a case which he had seen with Sir William Macewen, in which there were slow cerebation, vomiting, and vertigo, with a normal temperature. The symptoms had been getting worse. On examination of the ear granulations were seen sprouting from the meatus close to the membrane, and there had been slight, but constant, discharge. At the operation, the mastoid being opened, a large antral cavity was disclosed, the walls of which were eroded. After operation all the symptoms disappeared, so that cerebellar abscess must have been absent.

Dr. WILLIAM HILL (London) said that papillitis was not invariably the sign of intra-cranial disease, and an intra-cranial lesion was not always a direct result of the otitic condition. He narrated a case in which purulent disease had spread from the ear to the brain by way of the atlanto-occipital articulation. The *post-mortem* showed a track leading from the digastric groove to the joint. There were no swelling or pain over the joint, and the only symptom the patient complained of, which might have attracted attention to this structure, was inability to rotate the head.

Dr. OUSTON (Newcastle) said that in the diagnosis of these conditions the situation of the pain and tenderness was sometimes a trustworthy

guide. In cerebral abscess there was pain on percussion all over the head. In intra-dural or extra-dural abscess pain on percussion was localised to the spot where the abscess was. When, on lumbar puncture, fluid did not escape from the cannula, the possibility of tubercular disease should be kept in mind.

The PRESIDENT pointed out that opening the cranium in the presence of sepsis was a dangerous proceeding, so that an operation on the brain with a negative result was a calamity; thus too early exploration was to be deprecated, for in the case of very small abscess much disturbance was caused to the brain in the course of the operation to reach the abscess, and there was a tendency to the occurrence of spreading encephalitis. Before proceeding to explore, full weight should be given to the general rather than to the local symptoms. Vomiting, mental and physical weakness, and a coated tongue were symptoms of importance. Otherwise the radical mastoid alone should be done.

Mr. BALLANCE, in reply, agreed with the President that a negative exploration of the brain was a calamity. Before attempting an operation localising diagnosis should be made. It was not permissible to diagnose by operation. He was aware that he had omitted many points in his remarks on the subject, amongst others the simulation by malignant endocarditis, uræmia, and sphenoidal sinus suppuration of intra-cranial mischief. He agreed that leucocytosis might occur in suppuration of the temporal bone without intra-cranial suppuration. With reference to the naming centre, neurologists could not agree as to the existence of this centre; still, it was a fact that in early temporo-sphenoidal abscess there was loss of this power. Nystagmus was a valuable sign and was always present in cerebellar abscess, no doubt from interference with the vestibular nerve. Statistics were no doubt of value, but it was not wise to operate under their guidance alone. The disease should be followed up from its seat in the temporal bone. Regarding the ophthalmic appearances in suppuration of the middle ear, he was sure that if optic neuritis was present then there was also present an intra-cranial complication (which might be so slight as only to be visible on microscopic examination of the meninges, etc.), but when changes could be observed in the fundus the case should be operated on, and not merely watched. There was usually headache. Intra-cranial complications were more frequent in acute cases than in chronic. The symptoms of the bursting of the abscess into the lateral ventricles were high fever, rapid pulse, squint, and very rapid respiration.

THE RESULTS OF TESTING FOR NYSTAGMUS IN DEAF-MUTES.

BY DR. TWEEDIE.

The tests undertaken comprised the caloric and rotatory methods, and the investigation proved that a remnant of hearing was present in a considerable number of the individuals tested.

Dr. DAN MCKENZIE (London) expressed his indebtedness to Mr. Tweedie for having brought the subject of aural nystagmus before the section. With Bárány's work on the subject all were familiar, and he referred to a paper by Brockh, who had taken up the same line of investigation as Mr. Tweedie, and with very much the same results. The

speaker hoped that the paper would stimulate others to pursue the investigations into these phenomena, since there could be no doubt that we had hitherto only touched the fringe of a very large subject. He himself had been interested for some time in the matter, and although he had made many tests he had not arrived at any definite conclusions. The methods he had hitherto adopted had been rotatory, but Bárány had shown that the caloric method was more accurate than the rotatory, since by the former it was possible to interrogate each side separately. The speaker had found in one case of well-marked hysterical deafness, and in another case of suspected hysterical deafness, that after rotation in both directions nystagmus was entirely absent and there was no giddiness. He wished to draw attention to this finding, because it might be that by means of this test we had a means of deciding when deafness was due to hysteria, and if so the test would be of great value in the diagnosis of what was frequently a very obscure condition.

A DEMONSTRATION OF HIS OSTEOPLASTIC METHOD OF OPERATING ON THE FRONTAL SINUS.

BY DR. WATSON WILLIAMS.

REMARKS ON PARALYSIS OF THE SIXTH CRANIAL NERVE CONSEQUENT UPON CHRONIC PURULENT MIDDLE-EAR DISEASE, WITH REPORTS OF TWO CASES.

BY J. STODDART BARR, M.B., Ch.B.

The first case was that of a lad, aged seventeen, with purulent disease in the right ear of sixteen months' duration. He suffered from the following urgent symptoms: (1) Severe headache over the frontal and occipital regions for a fortnight; (2) several slight shiverings, accompanied by vomiting for nine days; and (3) double vision and squinting of the right eye for five days. In addition, there was found on examination marked double optic neuritis, and paralysis of the right sixth cranial nerve. The radical mastoid operation was performed, the antrum being deeply situated and filled with pus and cholesteatoma. The vertical cells were also extensively involved. Posteriorly the bone was soft, and, on exposing the sinus, a small peri-sinuous abscess was found and evacuated, the wall of the sinus being covered with a thick layer of granulation tissue. The paralysis of the sixth nerve passed off in three months, and the optic neuritis, which increased in intensity during the first month after operation, gradually improved, and in six months had entirely disappeared, leaving normal vision. The wound cavity was completely epithelialised in four months.

The second patient was a boy, aged thirteen, suffering from purulent discharge from the left ear, originating in babyhood. He

was treated by the usual conservative methods, with no apparent improvement. After six months' treatment his eyes were examined by Dr. Rowan, ophthalmic surgeon, who reported that vision was perfect in both eyes, that the eye movements were normal, also the responses to light and accommodation. Ophthalmoscopic examination showed fulness of the veins, especially those in the left eye. For quite a year after this he did not appear at the clinic and neglected treatment at home, but on March 8, 1907, he was admitted to the wards of the Glasgow Hospital for Diseases of the Ear, Nose, and Throat on account of urgent symptoms, consisting of pain and swelling behind the ear, headache, vomiting, bleeding from the nose, diplopia with external strabismus and facial paralysis. Profuse and foul-smelling discharge was observed to come from the left ear, and after syringing, the meatus was found to be full of granulation tissue. The tick of a watch was only heard on contact with the left ear, and the tuning-fork tests (Rinne and Weber) showed bone-conduction to be markedly in excess on that side. The soft parts behind the left auricle, which protruded from the side of the head, were swollen, tender, and fluctuant to touch, and on firm pressure pus flowed in increasing amount from the ear. The right ear was normal. Dr. Rowan again examined the eyes and reported marked double optic neuritis and paresis of the left external rectus muscle. Two days after admission the radical mastoid operation was performed, and extensive disease (cholesteatoma) of the antrum and vertical cells, extending to the tip of the mastoid, was found in addition to a fairly large perisinus abscess. The subsequent course showed continuous improvement; the paralysis of the sixth and seventh nerves slowly passed off, and four months afterwards no trace of either was found; the optic neuritis, although not entirely gone at that time, was much less marked; the cavity in the bone had become practically completely covered with a skin lining. Eight months after the operation Dr. Rowan found that the optic neuritis had quite passed off, leaving perfect vision in both eyes.

Remarks.—These two cases presented many points in common. In both there was long-standing purulent disease, limited to one ear, with extensive mastoid mischief including both antrum and vertical cells. In both there were symptoms pointing to intracranial involvement, viz. headache, sickness and vomiting, diplopia, and external strabismus; in both there was paralysis of the sixth cranial nerve and marked double optic neuritis; in both an extradural abscess over the sigmoid sinus was found at the operation;

and lastly in both cases there eventuated complete recovery from the sixth paralysis and the optic neuritis. The only symptom not common to the two cases was paralysis of the facial nerve in the second, which happily disappeared after a time.

It is not too much to say that Professor Gradenigo's investigations and his records of cases¹ form the most valuable contribution to this subject which has hitherto been published. There is no doubt that paralysis of the sixth cranial nerve in the course of a middle-ear suppuration, uncomplicated by brain abscess, leptomeningitis, or sinus thrombosis is comparatively rare. Although both of these cases were associated with chronic ear disease one conspicuous fact brought out by Gradenigo's paper is the very much greater frequency of this form of paralysis in acute middle-ear suppuration. Out of the large number of 53 cases, the details of which he has carefully collected, 47 were associated with acute conditions, and only 6 with chronic conditions, one of these being Dr. Barr's own first case.

How is this paralysis of the sixth nerve brought about in these cases? Gradenigo offers an explanation in support of which he presents considerable pathological evidence. As is well known, in certain temporal bones the system of air-filled spaces, usually confined to the mastoid process and the neighbourhood of the antrum, extends much more widely, involving the petrous pyramid, in the apex of which cellular spaces may be found (apical pyramidal cells). The sixth cranial nerve as it courses forwards to enter the cavernous sinus, lies close to the tip of the petrous bone, in a space or canal partly formed of bone and partly of ligamentous bands from the tentorium cerebelli. In this osteo-fibrous canal (space of Dorello) the sixth nerve is isolated from other cranial nerves, is extra-dural in position and lies alongside of, or it may even be in contact with, the apex of the petrous pyramid. The contention of Gradenigo is that inflammation or suppuration extending to the apical pyramidal cells affects the sixth nerve in the space of Dorello. We have an analogous case in the seventh nerve which is so often involved, as it lies in the Fallopian canal during the course of a middle-ear suppuration. Gradenigo brings forward important pathological evidence in the shape of *post-mortem* records of several cases, in which disease in these apical pyramidal cells had extended to the space of Dorello where the sixth nerve was found actually lying in pus. How does the infective process extend to the apical pyramidal cells? Gradenigo is of opinion that

¹ *Archiv für Ohrenheilkunde*, vol. lxxiv.

the most frequent pathway is from the anterior part of the tympanum to cellular spaces in the inner wall or floor, and from there by direct extension from cell to cell through partition walls or defects in these to the apex of the petrous pyramid. Another probable route begins in the tympanum or the air-cells in its floor or around the Eustachian tube, extending to the carotid canal and thence to the apical pyramid cells; or the extension may take place along the carotid canal direct to the spot where the sixth nerve passes forward alongside of the carotid artery.

Dr. BARR then showed a temporal bone illustrating how the infection may spread from the tympanum to the carotid canal. It was removed from a patient whose symptoms were typically those of thrombosis of the sigmoid sinus. Operation disclosed no disease of the sinus, and the patient died. The *post-mortem* examination disclosed an acute cerebellar abscess, but no thrombosis of the sigmoid or other sinus. A large collection of pus was found, however, surrounding the carotid artery in the carotid canal. On careful examination of the temporal bone after its removal, a large cavity filled with pus was discovered in the substance of the bone, below and internal to the carotid canal, from which it was separated by a thin but intact partition of bone. A minute tract, admitting a fine wire, was found to pass backwards and outwards from this pus-filled cavity to the tympanic end of the Eustachian tube. In addition there existed a small perforation in the transparently thin wall separating the tympanum and the inner wall of the Eustachian tube from the carotid canal. The infective process may therefore have travelled from the middle ear either direct to the carotid canal through this tiny perforation, or, by the more circuitous route, through the narrow tunnel leading to the pus-filled cavity in the bone alongside of the carotid canal. Both routes may have, however, transmitted infected germs. Paralysis of the sixth nerve was suspected in this case a few hours before death, but, owing to the condition of the patient, it could not be definitely verified.

In neither of the two cases was there at the operation any indication upon the inner wall of the tympanum or aditus of the route along which the infection may have travelled. Two circumstances were, however, suggestive of the pneumatic mastoid, the type which predisposes to involvement of the sixth nerve: (1) in both cases the vertical cells as well as the antrum were extensively involved; in one the disease extended quite to the tip of the mastoid, and (2) in one of the cases (No. 2) there was facial paralysis, which may have indicated a dehiscence in the Fallopian canal

suggesting bony defects or abnormalities elsewhere in the temporal bone. The co-existence with the paralysis of the sixth nerve of double optic neuritis, headache and vomiting, denoting increased intra-cranial pressure, was a striking feature in these cases, and was also noted in Gradenigo's series. It is therefore highly probable that the suppuration in the space of Dorello gives rise in many instances to a serous meningitis, localised, it may be, to the anterior cisterna, and that this accounts for the frequency with which double optic neuritis, headache, vomiting, slow pulse, etc., are observed in association with this form of paralysis of the sixth cranial nerve.

Dr. WATSON WILLIAMS thought this explanation seemed feasible. He narrated a case in which paralysis of the sixth nerve had given rise to grave anxiety before operation; after operation it passed off spontaneously. He asked Dr. Barr how paralysis was produced in these cases.

Dr. STODDART BARR, in reply, said that Dr. Williams's case was by no means unusual, and had been described by Gradenigo as occurring in acute suppuration of the middle ear with perforation. The paralysis came late in the disease, and was due to the transitory inflammation in the space of Dorello.

A NEW OPERATION FOR DEPRESSED FRACTURE OF THE NOSE.

BY MR. T. G. OUSTON.

Friday, July 31, 1908.

DISCUSSION ON THE METHODS OF DEALING WITH SUPPURATION IN THE MAXILLARY ANTRUM.

Dr. STCLAIR THOMSON (London), in introducing the discussion, said that simple acute cases nearly all got well of their own accord. Nasal washes should be avoided, but benefit could be received by the use of benzoine vapours, etc. If necessary the cavity could be washed through by the nasal route, or in some cases through the alveolar border. The acute form might last several weeks or even months and resolve without operation. If the case was a recent one interference could be withheld for some time without any harm resulting. In uncomplicated cases nasal lavage was adopted. He had found that lavage through the ostium maxillare was not so successful as through the other routes. He was not satisfied with Killian's hollow needles but preferred the Lichtwitz cannula. By this method cure frequently resulted, even of long-standing acute cases.

Buccal Lavage through the canine fossa or a tooth socket was adopted for uncomplicated chronic cases, and led to cure in many

cases of suppuration lasting for years. Recurrence, however, might lead to disappointment.

Operation through the Antral Wall.—Operation through the canine fossa alone was seldom practised nowadays. In the Caldwell-Luc operation the speaker did not sew up the wound in the mouth because it closed of itself. He made a free opening in the nose, avoiding the inferior turbinal. He enretted very sparingly and did not use caustics or packing. Failure might occur in these cases where the cavity was re-infected, especially from the ethmoidal cells. For this reason he made a practice of removing the ethmoidal cells and middle turbinal. Infection might proceed also from the sphenoidal or frontal sinuses. Failure might also arise from anatomical causes, as when the antral floor was below the level of the floor of the nose. It was important to carry the nasal opening as far forward as possible in order to obtain access to the acute anterior wall of the antrum.

Operation through the Antral-nasal Wall only.—This method was first suggested by John Hunter. The objection to it was that the contents of the cavity could not be inspected. It was a simplification of the Caldwell-Luc operation but could not be considered as anything but an incomplete method. He questioned whether it were any more successful than the radical operation. He practised permanent lavage through the alveolus when patients refused the severe operation. In cases where the maxillary antrum was a reservoir the other sinuses should be treated. In the case of frontal sinusitis, the frontal sinus operation should precede the operation on the antrum.

The speaker summed up his conclusions as follows:

(1) In cases which come under observation while in the acute or subacute stage, spontaneous resolution may be expected. If cure is delayed, puncture and lavage through the antro-nasal wall is indicated. If a suitable tooth socket is available, lavage through the alveolar border might be employed instead. All suspected teeth should be removed.

(2) In chronic uncomplicated maxillary sinusitis the best hope of complete cure is effected by the Caldwell-Luc operation.

The intra-nasal route requires full consideration, and discussion is invited on its indications, methods and results.

Permanent lavage through the alveolus is reserved for patients, where more radical measures are objected to, and when age or health do not permit them. The drawbacks of this method must not be forgotten.

(3) In complicated cases a complete diagnosis should be formed before starting surgical measures. Alveolar drainage, when available, should first be instituted, both to facilitate diagnosis and to diminish the septic intensity of the retained contents. The ethmoid next demands treatment, and the sphenoidal orifice should be enlarged. A frontal sinus operation should take precedence of the maxillary. If the latter is being drained through a tooth socket, the radical operation can be deferred until (by progress) it is determined that the antrum is really diseased and not simply a reservoir.

If alveolar drainage is not available, then an intra-nasal opening should be made at the time of the frontal operation.

A sound tooth should never be sacrificed, as the curative effect of alveolar drainage is uncertain.

Free drainage being of prime importance, plugs should be avoided.

Dr. LOGAN TURNER (Edinburgh) had investigated 180 cases of uncomplicated disease of the antrum under his own care in order to discover if possible the most suitable method of treatment. Simple lavage through the inferior meatus was adopted in 168 cases with about 50 per cent. of cures. It was always the method to be preferred in old people because of the slight shock. In 12 cases he had performed the radical operation as a primary measure.

Regarding the duration of the disease, recent cases (that is, with a duration of less than one year) showed 84 per cent. of cures by lavage, while old-standing cases (exceeding one year's duration) showed 58 per cent.

Regarding the aetiology, in only 117 cases of the 180 could this be accurately established. The bacteriological test was adopted for discriminating cases of dental origin from those of nasal origin. In 71 nasal cases there were 69 per cent. of cures. In 46 dental cases 68 per cent. of cures.

Nasal Polypi and Lavage.—Eighteen of the 180 showed definite polypi. Fifteen of these were treated by lavage and 10 were cured. For this reason it did not seem that the presence of polypi meant that the radical operation should be at once done. Indeed, it would be more correct to say that when polypi were present the other sinuses should be investigated.

Cytological and Bacteriological Examination.—In recent cases the staphylococcus was the organism most frequently found in pathogenic form, and streptococci were less frequent. In chronic cases, on the other hand, the numbers were reversed, streptococci

being more frequently pathogenic than staphylococci. In chronic cases he had found that the presence of streptococci with lymphocytes and squamous epithelium was an indication for the immediate radical operation. If streptococci were absent or present only in small numbers lavage should be adopted in the first instance. Even in cases having a short history the association of streptococci with lymphocytes and squames was a sign that the disease had extended into the submucous tissue and that radical operation was necessary.

Results of Lavage.—106 treated with 67 per cent. of cures; 81 per cent. of cures resulted from nasal lavage, and 60 per cent. of cures from alveolar lavage.

In recent cases of those treated by nasal lavage all recovered, and of those treated by alveolar lavage 73 per cent.

Of the chronic cases 69 per cent. of those treated by nasal lavage recovered, and 51 per cent. of those treated by alveolar lavage. These numbers showed that the nasal operation was the more successful.

In the case of the alveolar opening the wearing of a plug was a great drawback, and it frequently happened that long-standing cases where a plug was worn could be cured simply by removal of the plug.

Dr. H. TILLEY (London) had found that simple lavage in acute cases was frequently very useful in relieving the intense pain of the early stages. It might be performed every day for a week, and would be found to hasten recovery. The point of the needle should be directed well upwards so as to avoid the thick bone near the floor of the nose. He had found in the Caldwell-Luc operation that it was of great value to remove the anterior end of the inferior turbinal by which thorough drainage and ventilation could be secured. Intra-nasal drainage might be relied upon when the other sinuses were not affected, and when it was considered unnecessary to curette the mucous membrane. Most cases could be treated in this way because the swollen mucous membrane usually recovered after opening.

Mr. C. A. PARKER (London), of the two methods of radical operation supported the intra-nasal route. The Caldwell-Luc operation was successful only when a large opening was made in the nose. The simple intra-nasal method was an operation quickly and easily performed. It avoided the risk of infection of the cheek, but it was open to this drawback, that we were unable to make local applications to the wall of the antrum. Results, however, had been sufficiently satisfactory to justify this operation. If necessary the Caldwell-Luc operation could be performed later. He thought that the technique of making an opening in the antrum through the nose might be improved.

Dr. R. H. WOODS (Dublin) said that it should be remembered that there was a difference between suppurative in the antrum and abscess in the soft tissues. The wall of the former was not collapsible, and the

cavity was lined, not with granulations but with epithelium; thus simple drainage was of less value than in abscesses elsewhere, hence the epithelial surface should be removed, and a granulation surface substituted for it. It was quite unnecessary to remove the inferior turbinal bone, for which we ought to have great respect. He doubted the value of Mr. Logan Turner's figures, and asked what he had meant by a "cure."

Dr. DAN McKENZIE (London) condemned the alveolar puncture as ineffective and unsurgical. Either the patient had to wear a plug, when the cavity was not drained, or the opening was left patent, when pus poured into the mouth and was swallowed. He had obtained successful results by the intra-nasal method, making an opening in the antro-nasal wall sufficiently free to permit of thorough washing out by means of a wide-bored cannula. He did not agree that information as to the state of the lining of the cavity could not be obtained by the simple intra-nasal method, for it was possible to interrogate the antrum by digital palpation. Another point in favour of the simple intra-nasal opening was that the radical could be performed if necessary at a later date without that step being prejudiced by the previous treatment.

Dr. WATSON WILLIAMS (Bristol) avoided curetting the antrum. He also asked what Dr. Logan Turner meant by a "cure," because re-infection was common. There was a simplified method of performing radical operation which was not serious or dangerous. An opening could be made by trephining through the canine fossa, and a similar opening made through the inferior turbinal into the nose. The drawback to the intra-nasal method was that one could not tell what one had to deal with.

Mr. HARING said it was difficult to say when a case was cured. There were many latent cases in which discharge appeared only when the disease was revived by catarrh. In those cases he had found that the internal demonstration of iodides and bromides was of great value. In the operation removal of the anterior end of the inferior turbinal was his routine method, and he had come across a case where the neglect to do so had been responsible for prolongation of the suppuration. He considered the intra-nasal method unscientific because it was impossible to obtain thereby full information as to the lining of the cavity. His results with alveolar lavage had been very unsatisfactory.

Mr. STUART-LOW (London) asked for an application of general surgical principles to the disease under consideration. If it was acute it should be drained through the nose. He had found Killian's instruments very useful. He agreed with previous speakers in condemning the alveolar puncture. In chronic cases he performed the Caldwell-Luc operation. He also did not suture the opening in the canine fossa, and was very particular to remove the lining thoroughly, for it was quickly regenerated, as Dr. Wyatt Wingrave's examination of the scrapings had shown. It was unwise to mutilate the inferior turbinal any more than was necessary, and, like Killian, he himself removed only the middle third.

Mr. GEORGE JACKSON (Plymouth) said that, in his opinion, the presence of polypi in the nose was due to caries of the ethmoidal region, as he had shown in a paper read by him at Exeter.

Dr. JOBSON HORNE (London) thought Dr. Logan Turner's paper of the greatest importance because it dealt with bacteriology and cytology of this nasal disease. After evacuating the cavity the fluid drawn off should be examined in order to decide which operation should be adopted. His results had been very much the same as Dr. Logan Turner's. He was against the intra-nasal operation, which he compared

to operating on the middle ear through the meatus instead of through the mastoid.

Dr. STCLAIR THOMSON, in reply, asked Dr. Logan Turner whether transillumination or fœtor of the discharge was of any value in deciding the operation to be preferred. He was astonished at the success Dr. Logan Turner had obtained by alveolar lavage. Mr. Parker's notes were encouraging.

Dr. LOGAN TURNER, in reply, said that it was not always possible to tell what cases should be treated by irrigation and what cases should be treated by curetting, but in all scientific methods should be adopted. The inspection of the cavity was only possible by the Caldwell-Luc method. He had entirely given up the alveolar puncture. He had found that opacity on transillumination was present even after cure of the disease.

ACCESSORY AIR-CELLS IN THE SEPTUM NASI AN UNUSUAL DEVELOPMENT OF THE SPHENOIDAL SINUSES.

By MR. C. A. PARKER.

Having recently met with two instances of air-cells contained in the bony part of the septum near the base of the sphenoid, and having heard of two other cases, one in the practice of Dr. Otto Freer, the other in that of Mr. Harmer, investigations were carried out to try and explain their occurrence. From an examination of 500 skulls in the Royal College of Surgeons of London it has been found that in about 2.2 per cent. of skulls one or other of the sphenoidal sinuses, and sometimes both, are prolonged downwards between the alæ of the vomer. The bulging thus caused, which may be called the sphenovomerine bulla, descends forwards and downwards, and may be encountered during a submucous resection, when it is necessary to remove any considerable portion of the vomer.

This unusual development of the sphenoidal sinuses is of some clinical importance in cases of chronic suppuration, for if it is overlooked and the anterior wall of the sinus is removed to the usual extent, there would still be left a pocket measuring from one third to one half of an inch from above downwards in which pus might collect and keep up suppuration. In such cases the possibility of a counter-opening in the floor of the sinus is suggested as a method of affording a good drainage and providing for free irrigation.

Dr. LOGAN TURNER referred to the occasional occurrence of an accessory cell in the crista galli communicating with the anterior ethmoidal cells.

Dr. STCLAIR THOMSON had come across a similar case of an accessory cell in the crista galli which had been demonstrated by the X rays.

ON THE PERMANENCE OF THE IMPROVEMENT IN THE SHAPE OF THE
NOSE OBTAINED BY THE SUBCUTANEOUS INJECTION OF MOLTEN
PARAFFIN, BASED ON 200 CASES.

BY DR. WALKER DOWNIE.

DR. ANDREW WYLIE had found that hot paraffin injected in the nose migrated occasionally towards the forehead and the eyelids.

DR. WALKER DOWNIE said that cold paraffin, when injected, went in a mass, but when warm it spread through the spaces and broke up into fine particles. It never wandered after it had set. He used celloidin, and during the injection limited the spreading of the paraffin by the pressure of the fingers.

THE THEORIES, PATHOLOGY, AND TREATMENT OF ATROPHIC RHINITIS,
BASED ON A CLINICAL, HISTOLOGICAL, AND BACTERIOLOGICAL STUDY
OF TWENTY-NINE CASES.

BY DR. JAMES ADAM (Hamilton).

These cases arranged themselves into three groups: (*a*) Three families in which the older members (three mothers and their sisters) showed, after suppurative disease for a lifetime, the typical atrophic disease, while several children in the different families have marked hyperplastic, purulent rhinitis. (*b*) More than half the cases have sinusitis. (*c*) In less than half sinusitis has not been detected. Sinusitis is present much oftener than is suspected, and till definitely excluded by a systematic and repeated examination should always be suspected.

Atrophic rhinitis is mostly the end stage of hyperplastic purulent rhinitis for these reasons: (1) Hyperplastic processes, such as polypi, etc., are frequently found, especially about the middle turbinal, and in the sinuses, alongside inferior atrophy; (2) the family group with the older members atrophic, the younger hyperplastic, suggests the sequence; (3) the tissues from these hyperplastic cases show changes that are characteristic of, or are recognised as, the precursors of atrophy; (4) such changes may be found in the inferior turbinals of cases that are regarded as pure chronic sinusitis without atrophy; osteoporosis of inferior turbinate was found in one such.

Consanguinity appeared in half the cases, and was connected with a skeletal formation which, alone or together, with an accompanying weakened resistance of the mucous membrane to microbic invasion, helped to induce the disease.

There is a small group of cases in which either the atrophy is

primary or is more readily induced than in the large group beginning frankly as hyperplasia. Many cases date back to the eruptive fevers in childhood. Abel's bacillus is the most frequent cause of fœtor, but is not specific. Atrophy, not fœtor, is the central fact.

The most important treatment is that of the hyperplastic stage, especially in children; next, that of sinusitis. Paraffin injection and irrigation are useful in properly selected cases.

BRAIN COMPLICATIONS OF NASAL DISEASES.

BY PROF. ONODI.

PREPARATIONS SHOWING METHOD OF DEVELOPMENT OF NASAL POLYPL.

BY DR. J. S. FRASER.

PROCEEDINGS OF THE PARISIAN SOCIETY OF LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

June, 1908.

(Translated by Mr. CLAYTON FOX.)

EPITHELIOMA OF THE LEFT NASAL FOSSA.

M. GUISEZ showed a patient operated on for epithelioma which filled the whole left nasal fossa; the tumour, inserted on the inner wall of the nasal fossa, was visible on simply raising the nostril. The patient had neither complained of pain nor epiphora. She consulted simply for stiffness and obstruction. Operation was carried out according to Faure-Moureaux's method: resection of the nasal bone and ascending process of the superior maxilla. Complete cure at present, three months after operation.

M. CASTEX operated two months ago on an exactly analogous case, except that the disease was situated on the right side. The subject was a woman, aged forty, whose right nasal fossa was obstructed by a growth which the histological examination demonstrated to be cylindrical epithelioma. An incision was made over the inner half of the eyebrow and continued along the outer border of the nose; the ala nasi was detached and the whole of the nasal

bone removed. According to Moure's method the tumour was removed with a curette; there was no recurrence, and the nose was not deformed.

TWO CASES OF DIRECT LARYNGOSCOPY AND TRACHEOSCOPY.

M. GUISEZ showed (1) a child on whom he had operated for multiple papillomata by direct laryngoscopy, by means of the tubespátula, which revealed that the polypi had invaded the subglottic area. The polypi were removed with a straight forceps. Respiration had now become quite normal again, and tracheoscopy performed again recently showed that the patency of the larynx and trachea was normal. (2) A woman, aged forty-six, presenting a double valve in the trachea. It was congenital in nature, having necessitated tracheotomy at the age of five years, and having latterly induced intense dyspnoëic trouble with stridor; two attacks of suffocation. Tracheoscopy, performed a month ago, enabled one to observe a kind of large valve on the left side of the trachea; behind, on the posterior surface, was a round swelling arising from protrusion of the wall. Treatment consisted in dividing *in situ* the left valve with the œsophagotome and subsequently dilating with bougies. The trachea had now almost regained its normal dimensions, and all dyspnoëa had disappeared.

FISTULA OF THE RIGHT EXTERNAL SEMI-CIRCULAR CANAL; EXPERIMENTAL VESTIBULAR NYSTAGMUS.

M. A. HAUTANT showed a patient whose right mastoid process had been trephined, and which exhibited an area of osteitis at the level of the aditus. As soon as pressure was applied over the neighbourhood of the external semi-circular canal with a cotton-tipped probe, introduced through the mastoid opening and directed from behind forwards towards the tympanum, smart horizontal nystagmoid jerks towards the affected ear were induced. This phenomenon bears out in man the theories now accepted, on the connections between irritation of the external semi-circular canal and the direction of the nystagmoid reflex thus invoked. In this case there was, besides, lessening of excitability of the right vestibular mechanism to the thermic and rotary tests. The cochlea nerve was intact. The case was probably one of tubercular osteitis which commenced to invade the petrous bone at the level of the semi-circular canals.

EPITHELIOMA OF THE LEFT VOCAL CORD; LARYNGO-FISSURE WITHOUT TRACHEOTOMY AND WITH LOCAL ANÆSTHESIA.

M. LUC exhibited a man, aged fifty-four, operated on by laryngofissure for epithelioma of the left vocal cord under local anæsthesia, without tracheotomy. The wound was closed immediately. Some ten days later a pre-laryngeal abscess formed, which opened spontaneously at the site of the cutaneous cicatrix, and also intralaryngeally at the level of the incision of the thyroid cartilage. In spite of a free opening of this focus, followed by tamponings practised a fortnight ago, a fistula leading down to bare cartilage still persists. It was therefore an abscess, symptomatic of thyroid chondritis. The operated cord appeared cicatrised.

M. GEORGES LAURENS said it was his practice to insert a drain for the first few days at the level of the wound and in the pre-laryngeal soft tissues.

M. CASTEX does not incise the cricoid, for the gaping of the larynx is not increased by so doing. He employs curved scissors for removing the neoplasm. These glide along the thyroid without wounding it. He always inserts a drainage-tube in the pre-laryngeal soft tissues, and removes it on the fourth or fifth day.

CHRONIC FRONTAL ANTRITIS; FRONTAL FISTULA; RESECTION OF THE POSTERIOR WALL OF THE ANTRUM, UNDER WHICH A SUBDURAL ABSCESS WAS SITUATED.

M. LUC showed a young man, aged sixteen, previously operated on by a provincial colleague for chronic frontal antritis. A frontal fistula persisted since this intervention at the reopening of the part; an extensive sequestrum of the front wall of the sinus was discovered, and beneath it a subdural abscess. All the suspicious bony parts were most carefully resected; an incomplete disinfection of the deep surface of the periosteo-cutaneous flap prevented the attempt to procure union by first intention, notwithstanding a large fronto-nasal communication. At a second intervention, Luc resected all the thickness of the infected soft parts and applied the flap directly on to the newly-bared osseous surface, leaving the wound open at its lower part; the antral cavity was thus obliterated, and only a small surface, scarcely suppurating, remained where the wound had not united.

ACUTE FRONTO-ETHMOIDO-MAXILLARY SUPPURATION FOLLOWING MEASLES.

M. LUC showed a young girl, aged eleven, operated on May 9 last,

on account of urgency, for acute fronto-ethmoido-maxillary sup-puration of the right side, which had already opened outwardly and was complicated by a subperiosteal abscess at the level of the nasal process of the superior maxilla. At the same sitting, under chloroform, the frontal sinus was opened and placed in free communication with the nasal fossa, by breaking down the ethmoidal labyrinth, which was completely infiltrated with pus, and the maxillary antrum was next dealt with by the Caldwell-Luc method. On account of infection of the soft tissues, immediate closure of the frontal wound could not be entertained. Moist dressings were applied for more than a week. Only a fortnight after the operation secondary union of the wound was obtained, after revivifying its edges, without disfigurement.

A CASE OF SUB-GLOTTIC TUBERCULAR PERICHONDRITIS.

M. PASQUIER showed a woman, aged thirty-eight, affected with very advanced pulmonary and laryngeal tuberculosis, in whom a fluctuating swelling, the size of a hen's egg, had formed in front of the first rings of the trachea. The swelling, punctured several times, gave vent to thick yellow pus. Some weeks later the swelling opened spontaneously into the trachea. At the present time the suppurative perichondritis is discharging pus by an intra-tracheal fistula. M. Pasquier is not inclined in such cases to intervene surgically on account of the advanced lesions of the larynx and lung.

A CASE OF BOTRYOMYCOSIS OF THE AURICLE.

M. PASQUIER reported the case of a youth, aged sixteen, who developed a small swelling on the crus helicis of the right pinna, having the shape of a mulberry or raspberry, that is to say, made up of an aggregation of little rounded beads of reddish colour; the surface was oozing, the swelling was slightly mobile on its base, that is, inclined to be pedunculated and not broadly implanted as a wart would be. The size reached at the end of six months was that of a large lentil. The swelling gave rise to some itching, suppurated slightly, and bled easily. In three sittings with the galvanocautery the growth was destroyed. Notwithstanding the absence of histological examination, which M. Pasquier regretted not having been able to practise, all the objective symptoms justified one in asserting the case to be one of botryomycosis.

July 10, 1908.

THROMBO-PHLEBITIS OF THE LATERAL SINUS IN A CHILD AGED FOUR;
OPENING AND DRAINAGE OF THE SINUS, WITHOUT LIGATURE OF
THE JUGULAR; PROTRACTED SEPTICÆMIA; RECOVERY.

DR. CORNET: Thrombosis of the lateral sinus followed an acute otitis which supervened during measles. The author freely exposed the lateral sinus, evacuated a peri-sinusal abscess, resected the outer wall of the sinus, thickened and proliferating, and removed a firm and adherent clot, which filled the lumen of the vessel. The limits of the thrombus, overstepped above, could not be reached below. Oscillations of temperature persisted for a month after the intervention, without the formation of metastatic abscess. The fever disappeared progressively. The observation seems to confirm the opinion of otologists, who reserve ligature of the vein to cases where thrombosis has involved the vein, but shows that it is necessary to clear out the thrombosed sinus completely.

M. LEC observed that the interpretation of this very interesting case which M. Cornet had communicated was not devoid of difficulty, given that the intervention revealed the presence of pus around the sinus and a grey fibrous clot in the interior of the vessel, it was feasible that one was confronted with a thrombophlebitis passing on to purulent transformation of the clot, but that the change was not yet accomplished when the vessel was opened. It was evident that if an intra-sinusal abscess had already existed in the portion of the sinus not reached by the operation, phlebitis would have ultimately extended to the jugular vein. It was regrettable that a bacteriological examination of the sinus contents had not been practised; it would have surely revealed the presence of bacteria there. After all, thanks to his promptness, M. Cornet's intervention had been successful. If its effects on the course of the infection had not been decisive, it was due to the fact that the operation not having been complete, a small portion of infected clot was left in the opened sinus, which for some days gave evidence of its presence by febrile attacks of pyæmic type but with diminishing intensity, the infective process having ended by wearing itself out.

BILATERAL GROWTHS, HARD AND SYMMETRICAL, OF THE FLOOR OF THE NASAL FOSSE: CYSTS OR OSTEOMATA.

M. KÖENIG showed a patient, aged thirty, with hard tumours on the floor of the nasal fossæ, the size of a cherry, completely filling the inferior meatuses, touching the septum and pressing the inferior turbinated bodies upwards. The growths were pale, regular and uniform on both sides. Diaphanoscopy was in favour of maxillary cysts.

M. MOXNIER remarked that this case resembled that of the patient seen by him eight or ten years ago and on whom M. Picqué had operated. He had seen her five years before the operation and was able to observe the progressive obstruction of the nose. One had to perform a resection of the superior maxillæ to remove the growths, as no instrument could get at them.

PYEMIA OF OTITIC ORIGIN WITHOUT THROMBO-PHLEBITIS.

M. PAUL LAURENS: Following a chronic middle-ear-otitis, rekindled, a woman, aged twenty-eight, showed at first some indications of labyrinthine irritation; then the temperature rose to $41^{\circ}\text{C}.$, followed successively by anti-brachial phlegmon, suppuration of the knee-joint, sterno-clavicular arthritis, and suppurative arthritis of the left elbow. The lateral sinus, opened, was normal; no trace of thrombus. Pus from the joints contained streptococci like that of the tympanum. The affection evolved without rigors. The patient was well on the road to recovery.

M. MAHU quoted a case of generalised streptococcal infection which also recovered. It was that of a woman, aged thirty-three, who, attacked by puerperal infection, contracted a suppurative otitis media, which was followed in a few days by mastoiditis. M. Mahu performed a very free antrotomy, but there appeared simultaneously a bilateral suppurative cervical adenitis which had to be opened, then a very extensive erysipelas of the face and scalp, and lastly empyema thoracis, which had to be dealt with surgically. The patient battled with a very high temperature and exhaustion, and all trouble by degrees disappeared.

G. VEILLARD.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting held at Montreal, May 11, 12, and 13, 1908.

(By courtesy of the *Medical Record*.)

DR. HERBERT S. BIRKETT, of Montreal, President.

(Continued from p. 524.)

TUESDAY, MAY 12—SECOND DAY.

Methods of Opening the Maxillary Antrum.

Dr. JOHN O. ROE, of Rochester, read a paper with this title, and enumerated the various operations which have come into vogue during the last few years. He emphasised the advantages of the nasal route over all others. The success of this latter method, no matter what special modification of it was followed, depended on the freedom of the opening which allowed perfect drainage and gave free access to every portion of the cavity. The lower portion of the turbinate was removed first with either knife or scissors. An incision was then made through the periosteum down to the bone from behind forward, covering the entire length of the antrum. The first puncture should be made over the forward projection of the antrum, and at this point the incision through the periosteum was turned downward as far as the floor of the nose. This flap was then raised from the bone, carrying the periosteum with it, throughout this suborbital portion of the wall and rolled into the centre of the nose out of the way. An opening was then made into the anterior portion of the septum as close to the floor as possible. This was enlarged with any instrument preferred, the cavity was carefully explored, curetted and dried out. The periosteum, which had been raised from the inner wall, was trimmed and then turned down over the stump of the wall and held there by iodoform gauze packing. Thus a uniform mucous surface was left and a perfectly free opening into the cavity. The patient could easily irrigate through such an opening himself and absolutely free drainage was maintained. Danger of recurrence was avoided, even in face of infection, and there was no necessity for an external operation. A new model of antral perforator was exhibited.

Dr. HARMON SMITH described the instrument which he was accustomed to use in perforating the antrum. He did not believe it very practicable to attempt to save the antral mucosa, because we

often pulled it away entirely in making the first change in the dressing. Dry packing was best.

Dr. W. E. CASSELBERRY believed that the best instrument was one which would cut forward after it had entered the antrum.

Dr. J. PRICE-BROWN, of Toronto, believed that such an instrument as Dr. Roe had presented was useful in chronic cases, but there was some danger of atrophy resulting if a permanent connection between the antrum and nasal fossa was made in young patients. In the latter class the operation by the canine fossa route was preferable.

Dr. EMIL MAYER was in general strongly in favour of the intra-nasal route, and wished to protest vigorously against the unclean habit of having the patient's mouth bathed with antral pus, as was the case when the buccal route was taken. It was possible to cure chronic cases by intra-nasal drainage, and he had had much satisfaction in using the chisel devised by Dr. Myles, which had a large end and pulled forward, thus meeting the desideratum mentioned by Dr. Casselberry.

Dr. J. H. BRYAN named, as an objectionable feature of the intra-nasal operation, the fact that if the opening was made in the inferior meatus or in the region of the anterior extremity of the inferior turbinal, the opening thus left might prove of great embarrassment to the patient. This operation would not cure all cases, for we could not curette the entire antrum through the inferior meatus. Only through an anterior opening could we remove all the diseased mucosa.

Dr. T. P. BERENS, of New York, said we must determine whether the antrum was merely a pus reservoir or the actual seat of disease. The discharge might come from above and our procedure would depend on the finding as to this matter in each individual case. Dr. Roe had not made it clear to the speaker just how he decided this point in diagnosis and selected his cases for the intra-nasal operation.

Dr. J. W. GLEITSMANN was in accord with Dr. Bryan, and said that what we needed was a more thorough knowledge of the ætiology and diagnosis of these conditions and as simple methods of treatment as possible.

Dr. L. A. COFFIN said that his custom was to do a radical frontal or ethmoidal operation on one side and treat the antrum secondarily, and do, as had been suggested by Dr. Bryan, the radical operation through the canine fossa opposite the middle turbinate.

Dr. E. FLETCHER INGALS spoke of the excessive zeal of some men in the line of operating on sinus cases. One did not need a sledge hammer to drive a tack. He believed that 80 per cent. of antral cases and more than that number of frontal cases could be cured by a comparatively mild operation through the nose. It was better to act mildly at first, for we still had the radical procedure in reserve.

Dr. J. H. BRYAN believed it impossible to cure a chronic antral suppuration without a radical operation.

Dr. W. L. BALLENGER, of Chicago, believed that a large percentage of inflammations, even chronic, of the cells draining anteriorly into the infundibulum could be cured without a radical operation. The ends to be attained were free drainage and ventilation, and even in the presence of granulation and bare bone cure would result if we could establish the two conditions named. He had found radical operations necessary in only about 3 per cent. of a group of 200 cases.

Dr. BERENS would admit that 80 per cent. of all the cases we saw would recover without radical treatment, but the objection to intra-nasal surgery in these cases was that we could not always see what we were doing. The dropping of pus into the mouth was not a necessary consequence of the canine fossa operation, for the canine opening could be stitched so as to prevent this.

Dr. ROE said, in closing, that he was accustomed to make a small opening through the nasal wall and then explore with a probe in order to determine whether the antral wall was lined with mucous membrane or whether the cavity was full of granulations and the mucosa spongy. Through this opening he inserted a small cannula and made further explorations. One could medicate every portion of the antrum by means of remedies applied on a cotton-tipped bent probe. He did not believe in scraping out the antrum and leaving on its surface a great scar. We should give the membrane time to recover.

Abscess of the Larynx following Pneumonia.

Dr. T. MELVILLE HARDIE, of Chicago, reported the case of an Italian labourer, aged forty-three, admitted to hospital with pneumonia. Resolution came in nine days, but he still coughed frequently, and had some pain in the throat. Next day there was considerable dyspnoea and laryngeal cedema could be made out. Two days later tracheotomy under local anæsthesia was called for.

After exposure of the cricoid and upper trachea an irregular enlargement was made out on the left side of the larynx and excision of it evacuated some pus. Diplococci (probably pneumococci) were found in pure culture. After a serious illness the man recovered.

Dr. H. L. WAGNER said it was interesting to note the different effects the pneumococcus had on mucous membranes and adjacent structures. In one instance in a case of pneumonia an acute swelling was found on the inside of the nose and both sides of the septum, and then going externally, giving the picture of erysipelas. From this inflamed area a pure culture was obtained similar to that from the nose and septum.

Further Report of a Case of Tracheal Scleroma.

Dr. EMIL MAYER, of New York City, gave the further history of the case reported by him in 1906. Ten months later the patient presented herself with hoarseness and dyspnœa, and it could be seen that the growth had recurred. She was submitted to X-ray treatment through an extensive tracheotomy wound made for the purpose, the incision being three and a half inches long, from the lower edge of the thyroid cartilage to about three-quarters of an inch above the sternal notch. The isthmus of the thyroid was divided between ligatures. Exposure was made under chloroform at first, but without it later. Six weeks of this form of treatment had a most happy result, and she left the hospital apparently cured. Seen one year later she reported that she had continued well, without dyspnœa, hoarseness or cough. Examination of the larynx and trachea showed perfectly normal conditions, with no trace of recurrence. In case of later recurrence the author thought that application of the X ray over the cicatrix of the tracheotomy wound would promise good results, as this would not present the same resistance as the normal tissue would; or this failing, it would be easy to reopen the former wound and renew the direct exposure.

Subglottic Papilloma; Branchiogenic Cyst.

Dr. THOMAS J. HARRIS, of New York City, reported these cases.

CASE I was that of a boy, aged eleven, with subglottic papilloma, which was attached under the surface of the right cord. Attempts at endo-laryngeal removal were unsuccessful owing to the

extreme irritability of the throat, an overhanging epiglottis and a very poor general condition. He was admitted to hospital and another attempt made with the tube-spatula. In this way a part of the growth only could be taken off, and laryngo-fissure was decided on with a preliminary tracheotomy. There was considerable reaction, but this finally subsided, and it was proposed to insert an intubation tube on account of persistent swelling of the cords, though all traces of the papilloma had disappeared. The child was intubated, but in a few hours he began to have severe dyspnoea, and the tracheotomy tube was introduced. The intubation tube could not be seen in the larynx, and events proved that it had been dislodged and swallowed, as it came through in the stools. After a while another intubation tube was introduced and remained in place for a few days and then disappeared, nor was any trace of it found afterwards. The boy did well, however, and eventually made a good recovery.

CASE 2 was that of a bronchiogenetic cyst occurring in a Russian woman, aged thirty, who complained of a feeling of discomfort and occlusion in the region of the naso-pharynx. Digital examination revealed a growth suggesting a cyst and filled with pulpy material like adenoids. The mass was easily removed with the forceps. Sections showed the tissue to be made up mainly of lymphadenoid structure. One surface showed the normal stratified epithelium of the pharynx. There were a few mucous glands, and scattered through the section in several places were tubules lined with ciliated columnar epithelium. Beneath this epithelium the tissue had the appearance of embryonal connective tissue and the growth was evidently the remains of a bronchiogenetic cleft.

Some Surgical Emergencies Associated with the Tuberculous Larynx.

DR. CHARLES P. GRAYSON, of Philadelphia, made in this paper a plea for a more hearty and earlier association of the family physician with the specialist in caring for the laryngeal lesions arising in the ordinary course of pulmonary tuberculosis. There should be no such thing as emergency surgery in laryngeal tubercle. Much could be done to prevent certain complicating lesions, but it must be done by one accustomed to intra-laryngeal manipulations. Several personal cases were detailed illustrating the points made by the writer. In one case a hurried tracheotomy was done to prevent asphyxiation. In a second an abscess was threatening life and called for evacuation. In a third a tracheo-

tomy was called for on account of sudden œdema. Such experiences were happening frequently not only in the country districts but in large cities, where the aid of the laryngologist could be easily secured.

Dr. W. E. CASSELBERRY said that it was not always possible to prevent such complications as had been mentioned by Dr. Grayson. They would come on in spite of every precaution the specialist might take.

Dr. PRICE-BROWN would emphasise the value of rest in laryngeal tuberculosis. In one instance he had been obliged to do a tracheotomy, but the rest afforded the larynx by the operation had sufficed to keep the patient alive for over five years. One half of the epiglottis was gone and the upper orifice of the larynx was greatly contracted. Yet the man was able to work eight hours a day and the local process had been brought to a standstill.

Dr. J. O. RÖE would regard tracheotomy only as an emergency measure, but functional rest could be obtained by abstinence from conversation. Nothing less than absolute silence was efficient.

Dr. J. W. GLEITSMANN called attention to the dangers arising in the use of tuberculin. He had been very careful in selecting the dose, had always had his patient under close observation, and had never seen any bad effects. He always examined the chest and eyes after each injection. He believed there was some chance of relieving these cases if the patient could live and work in a hygienic environment with an abundance of good food.

Papilloma of the Larynx in Children.

Dr. J. PAYSON CLARK, of Boston, reported the later history of four cases which he had presented to the Association in a paper read three years ago. He also reported four new cases and reviewed the literature of the last three years. The entire number of cases reported was eighteen. In ten tracheotomy had been done with five fatalities. The author was of the belief, however, that in the prolonged and obstinate cases a preliminary tracheotomy offered a better chance of permanent recovery and avoidance of recurrence than does a laryngo-fissure. Desiderata of treatment were (1) that we should get rid of the growth as soon as possible and with the least risk to the patient; (2) that the voice should not be impaired, and (3) that (in girls at least) there should be no external scar. The author dismissed laryngo-fissure as never applicable. A new case should be watched for a few weeks, and

if no increase in size took place one might try removal without tracheotomy, using straight instruments and direct vision. Such neoplasms would not yield to any form of treatment until their period of active growth had been passed, or until they had lost their power of reproduction. There were no data on which to estimate the duration of this period, hence the wisdom of the above-named course of action. In all our manipulations the utmost care must be taken not to wound the mucosa, as this trauma may be the site of a new papilloma. The advisability of operating without a previous tracheotomy in cases with dyspnoea must be decided in each individual instance. Apart from the curative value of tracheotomy there could be no question that it made the subsequent removal of the growth easier and safer. The risk of broncho-pneumonia following (immediately or eventually) tracheotomy was a real one, but in case of a large and rapidly-growing papilloma or one recurring rapidly after removal without tracheotomy, the only alternative was suffocation.

Dr. A. COOLIDGE, Jun., coincided in every respect with the views of Dr. Clark. As regarded treatment, cases of papilloma could be divided roughly into two classes: (1) Those which occurred in young children, and (2) those occurring in children old enough to allow one to put in any instrument for inspection and treatment. This age might be between seven and ten years. Before that age, a tube having once been inserted, it should stay in till all traces of the papilloma had disappeared. Frequent operating and laryngo-fissure are to be condemned. Children might die from many causes if the tube was removed too early.

Dr. D. BRYSON DELAVAN referred to the tube devised by Dr. John Rogers, of New York. He was in general accord with the views expressed in the paper, and called special attention to the dangers of ill-fitting tubes.

Dr. HARMON SMITH believed that there must be some pathological difference between a single papilloma, even when large, and the multiple variety. The former were not so apt to recur. The more the latter were removed the more they seemed to recur. If, however, we could put the larynx at rest, the growths might cease to reproduce themselves.

Dr. EMIL MAYER asked if anyone present had had experience with the local application of alcohol in these cases.

Dr. H. L. SWAIN had seen some success follow the use of alcohol as suggested. He had had no experience with either iodine or carbolic acid, which had been suggested by some writers.

Dr. E. FLETCHER INGALLS would feel like urging a tracheotomy in all cases in which there was dyspnoea before attempting an operation for removal. He had seen no benefit from the use of alcohol, but had seen one papilloma cease to recur following the use of iodine and carbolic acid.

Dr. F. E. HOPKINS had seen pressure from an intubation tube cause the papilloma to disappear, but irritation of the region resulted with ulceration of the vocal cord. A hard rubber tube instead of a metal one might have afforded better results.

Dr. CLARK said, in closing, that in none of his cases was the dyspnoea so severe as to prevent him from doing a tracheotomy. He had never been called on to insert an intubation tube to prevent suffocation. Tracheotomies done at leisure left less conspicuous scars than those done hurriedly.

Essentials in Voice Production.

Prof. WESLEY MILLS, of the McGill University Medical Faculty and a guest of the Association, delivered a short address on this subject. The laryngologist must show, in order to influence his patients, a sympathy with them and some knowledge of musical sound as far as it went. There were so many methods of vocal teaching now before the public that one was at a loss to know what plan to adopt. Prof. Mills laid down as essentials the following points: Speaking and singing are in reality the same. The physiological adjustment of the various parts of the vocal organs is the keynote of the whole question. Practically all respiration exists for the expiratory blast. The principal adjustment is between the expiratory action of the respiratory mechanism and the vocal bands, known as the "attack." This is completed by a further adjustment of the upper or resonance chambers to the parts below. One speaks with the tongue, and should on no account speak with the throat. He must speak from the throat into the resonance or upper chambers—that is, he must speak towards his face. He must especially speak and sing with that part of his mouth cavity lying between the soft palate and the teeth. He must keep the back of the throat and the front boundaries of the mouth cavity out of the way. He must never strain or use more force in phonating than the organ can bear without suffering. Artistic speaking and singing are always physiological. Vowels alone are musical and consonants are necessary nuisances, but deserving of close attention. The speaker

performed some simple experiments illustrating resonance. He deplored the prevailing slipshod methods of pronunciation in daily life, on the stage and in the concert-hall. The present generation was given to a nasal tone owing to the laziness that allowed the tongue to roll up and back and the soft palate to drop and meet it so that the breath stream must pass through the nose. Prof. Mills would lay great stress on exclusive mouth-breathing in phonating. In mouth breathing the tongue flattened, the soft palate tended to rise, and the totality of the mouth parts were put into the best form for the utterance of pure vocal sounds. Under such circumstances nasality became relatively difficult, and in absence of mouth breathing it was very difficult to cure. All faulty methods of voice production tended to produce venous congestion with a corresponding starvation and poisoning of the tissues of the vocal organs owing to the fact that the blood was kept too long in the capillaries.

Essentials of Speech Production.

DR. G. HUDSON MAKEN, of Philadelphia, spoke of the method of voice formation and of the differences of the voices for speech and song respectively. He then took up the matter of articulation and considered the central mechanism of speech as distinguished from the peripheral mechanism. The chief receptive avenue for speech was of course through the hearing; but vision also played an important part. The chief motor centre was Broca's centre as it was called, at the posterior portion of the third frontal convolution, and in it were stored the memories for the varied movements used in the production of speech. Modern theories suggested that the Broca centre was really sensory rather than motor, as it shared with the visual and auditory centres the function of serving as a storehouse for sensory impressions. On this theory the motor centre for spoken words lay in the medulla. The order of cerebral activities in the production of speech, therefore, was—first, the revival of word images in the auditory centre (and in some cases in the visual centre) by means of afferent impulses from without through the special senses, or by means of impulses from the higher intellectual centres from within the brain; second, a transmission of these impulses from revived images in the auditory and visual centres through commissural fibres to the Broca centre; and third, a revival of the kinæsthetic word images which in turn incited to action the motor centres in the bulb. For such physiological results

we must have the following conditions: (1) The mechanisms must be structurally normal and free from pathological encumbrances, such as dental, alveolar, and palatal irregularities, enlarged tonsils, nasal obstructions, and cerebral tumours; (2) the various parts of the individual mechanisms must be accurately co-ordinated; (3) there must be a similar co-ordination of the mechanisms themselves; (4) this accuracy of vocal and articulatory musculature must be largely automatic, and this in turn was brought about mainly through psycho-physical development and training. The speaker said that he always advised the removal of enlarged tonsils in singers and had never seen any bad effects follow. Children inherited bad speech tendencies, and a bad environment in this respect encouraged bad speech. He believed that the diaphragm should be confined entirely to expiration and never used for inspiration. What he meant by diaphragmatic breathing was not to use the diaphragm at all for inspiration but to use it artistically in the production of voice.

Dr. J. W. FARLON remarked that one difficulty in instructing patients in the use of the voice was that they did not hear the sound of their voices as it appeared to other people. This was easily realised by anyone who spoke into the recording apparatus of a phonograph and then listened to his own voice as recorded on the cylinder. He would lay stress on the importance of careful attention to the use of the voice by children. Comic operas and stage darkies with all their slang and loud talking were most demoralising to the ordinary listener, and were responsible for much of the modern abominable vocal methods of every-day life.

Prof. MILLS said that occasional joint conventions between teachers of singing and laryngologists would be of great service. The voice teachers differed much in their use of terms and much confusion was caused thereby. The influence of great teachers was after all but a tradition. He was not prepared to admit fully that the Broca centre was a sensory affair. The recent experiments of Sherrington and Grünbaum seemed to prove that all this region was motor. There was a tendency also to recast the entire subject of aphasia, for it was not believed that the present system of localisation was at all satisfactory. His ideal of a voice-teacher was one who would in a large measure combine in himself the physiologist, physician, laryngologist and musician. He had found that the throats of singers were, as a rule, comparatively dry, and believed that too much moisture was a distinct disadvantage, especially when occurring on the vocal bands. Childhood

was not too early to begin correct instruction in speaking. He did not believe that the removal of the tonsils affected the pitch of the voice, and in the case of a patient who might claim that it did, he would say that the patient had not learned how to sing correctly. Contrary to the view expressed by Dr. Maknen in the discussion he must insist that the diaphragm was an inspiratory and not an expiratory muscle.

(To be continued.)

Abstracts.

PHARYNX.

Magne, P.—*A Case of Benign Tumour of the Lower Pharynx, with Remarks.* "Rev. Heb'd. de Laryngol., d'Otol., et de Rhinol.," April 4, 1908.

A man, aged seventy-three, had found trouble in swallowing for nearly three years. This proved to be due to a pedunculated growth the size of a small pigeon's egg, attached below the right posterior pillar. It was removed without difficulty by the galvano-cautery snare. The tumour proved to be a fibro-myxoma.

Chichele Nourse.

Sylvester, C. P. (Boston).—*The Tonsils and their Relation to the General Health.* "Boston Med. and Surg. Journ.," August 6, 1908.

This paper includes the faucial and pharyngeal tonsils, and is valuable as touching upon the important relations of these structures with rheumatic fever, tubercle, streptococci and other infections. It insists that in the treatment of acute tonsillitis, the administration of full doses of sodium salicylate should never be neglected, as by that means "an attack of acute rheumatic fever may be cut short and a severe heart lesion averted or favourably modified."

Macleod Yearsley.

THROAT.

Ker, Claude B., and Croom, David H.—*Formic Acid in the Treatment of Diphtheria.* "Edin. Med. Journ.," June, 1907.

Considering that the asthenia so characteristic of diphtheria might be favourably influenced by the use of formic acid, Croom administered it in 100 cases admitted to the Edinburgh City Hospital in the early months of 1906. His results were so encouraging that during the remainder of the year all cases of diphtheria admitted were systematically treated with formic acid. Formerly all cases were treated with small doses of strychnine; the formic acid was now administered instead of the strychnine. Five to twenty minims of a 25 per cent. aqueous solution were administered by mouth every four hours. The dosage was graduated more according to the severity of the case than to the age. No effect was produced till after forty-eight hours, when, broadly speaking, less irregularity of rhythm and strength of pulse were observed than is usual, and the general nutrition seemed to benefit, the patient's colour being strikingly improved.

The broad statistical results of this treatment are shown in a table

comparing the 1906 cases treated with formic acid with 1905 cases treated with strychnine :

Year.	No. of cases.	Percentage deaths.	Percentage fatal heart failure.	Percentage paralysis.	Percentage albuminuria.
1905	507	8.0	3.07	9.09	23.7
1906	412	6.2	1.94	2.9	15.7

The death-rate of laryngeal cases fell from 18 to 16, and the death-rate of tracheotomy and intubation cases from 35.28 to 27.5 per cent.

The authors consider the effect on fatal heart failures' rate disappointing, but they are convinced that a few cases recovered with the formic acid that otherwise would have died.

The most striking result was the great reduction in the percentage of paralysis cases, and the reduction in albuminuria cases is also worth noting.

The authors regard these results as due to the treatment and not to any change in type of disease.

Arthur J. Hutchison.

NOSE AND ACCESSORY SINUSES.

Turner, Logan A.—*Mucocoele of the Accessory Nasal Sinuses*. "Edin. Med. Journ.," November and December, 1907.

IN this paper Turner records seven cases of mucocoele of the frontal sinus and three of the ethmoidal labyrinth which have come under his observation since the date of publication of his paper on bone cysts in the nose, viz. 1904. Of the ten patients seven were females, three were males. The condition seemed to have commenced at an early age in some, viz. ten, twelve, and sixteen and a half years old, and in at least seven of the whole series it had begun before the age of forty.

For details of the cases see the original paper.

Clinical Features.—Orbital swelling is generally the first feature that draws the patient's attention to the existence of some abnormal condition. The swelling progresses very slowly, and is not accompanied by any pain or tenderness. It is usually confined to the upper eyelid, but may spread on to the forehead and the root of the nose. Its exact position is not of much value in the differential diagnosis between frontal and ethmoidal mucocoeles. The skin over the swelling is normal in appearance unless the mucocoele has been infected by pyogenic organisms (one case), when, of course, acute inflammation alters the conditions entirely.

On palpation there is no tenderness. The swelling is soft, elastic, and fluctuating, with, in some cases, a distinct bony margin, which may be of the nature of an exostosis. In none of these ten cases could egg-shell crackling be made out. Cystic dilatation of the tear-sac, dermoid cysts of the orbit, and malignant growths of the frontal sinus may all simulate mucocoele.

Displacement of the eyeball occurred in seven of these cases, and was forwards, downwards and outwards in five, forwards and downwards in one, outwards and downwards in one. Displacement forward may occur with both frontal and ethmoidal mucocoeles; downward displacement is usually present in frontal, but is less common in ethmoidal cases.

Notwithstanding the displacement, movements of the eyeball may be interfered with but little or not at all.

The most common disturbance of vision is diplopia, but that is not always present. In two of Turner's, and in a number of other cases, epiphora was the earliest symptom noticed.

Intra-nasal examination is negative in many cases, but in some aids the diagnosis.

Turner's cases apparently throw no light on the aetiology of the condition.

Of the frontal sinus cases absorption of a part or of the whole of the bony floor of the sinus had taken place in six, of part of the posterior or cerebral wall in two, but in none was there any absorption of the anterior wall.

In the three ethmoid cases the os planum or lamina papyracea had been more or less destroyed. Turner doubts whether distension of the sinus occurs; the walls are eroded and thinned, but probably distension is more apparent than real.

The contents of a mucocele are usually of a thick tenacious mucoid consistence, but may be clear like serum or cerebro-spinal fluid, or may look purulent although microscopically they are not pus.

Operation may in a few ethmoid cases be carried out intra-nasally, but in most cases external operation is to be preferred. Turner establishes a large free opening between the cavity and the nose, puts a rubber drain through the said opening, packs the cavity lightly with gauze, and closes the external wound, except where the end of the gauze strip protrudes. The strip is removed after four or five days, and if the drain is acting well the skin incision is allowed to close. The patient is taught to wash out the cavity through the rubber drain, the latter being left *in situ* five or six weeks.

Arthur J. Hutchison.

EAR.

Gilbert, Paul.—*Abscess of the Right Temporal Lobe of Otic Origin; Operation; Recovery.* "Annales des Mal. de l'Oreille du Larynx, du Nez, et du Pharynx," February, 1908.

A seamstress, aged fourteen, had suffered from purulent otitis in the right ear as long as she could remember. Otoscopy revealed that the whole of the drumhead except Shrapnell's membrane and the annulus fibrosus had disappeared. The manubrium hung bare in the atrium. The promontory was covered with granulations which bled easily, but there was no lesion of the underlying bone. Bare bone was felt in the attic above and internally. Hearing was much impaired, watch, contact. Rinne negative, Weber positive. The labyrinth was not involved. The left ear, nasal fossa, posterior nares, and oro-pharynx were normal. Three months' palliative treatment being ineffectual and there being evidence of infection, temperature 38° C., etc., Stacke's operation was performed on April 9. Whilst curetting the attic the roof was detached in a condition of osteitis. The dura thus exposed appeared healthy. Diseased bone was found in the aditus and antrum. During the succeeding four weeks the temperature did not descend below 38° C. There were anorexia and temporo-parietal headache.

The operated cavity, however, epidermised well, and the patient left hospital on May 11. Headache still continued, and by May 11 there was an appreciable falling off in health attended by pallor and wasting. A few days afterwards drowsiness set in. Pulse 55, temperature 37.4° C. Meningeal symptoms were absent. Brain abscess was diagnosed. On May 25 the osseous opening where the membranes had been previously exposed was enlarged, the dura mater, which was red and bulging, was opened in an antero-posterior direction: gray matter immediately pro-

truded. The latter was incised with the point of the bistoury to the depth of 3 mm.; some drops of pus escaped under pressure. A groove-director was next passed upwards and inwards to a depth of 3 cm. An abscess was found containing about a table-spoonful of pus. A drain-tube was inserted. During the next fifteen minutes the pulse-rate rapidly increased to 80. For the following forty-eight hours the patient remained drowsy and then gradually brightened up. During the first two dressings there was almost a complete absence of pus, but on May 26, when the tract was explored, a large quantity of pus welled out. A similar discharge occurred on May 30 and June 9. From the latter date onward no discharge followed exploration of the cerebral wound, and by June 21 the abscess cavity had healed. On June 27 the patient was discharged with the retro-auricular wound closed and the cerebral state normal.

In conclusion the writer remarks that the symptomatology in this case was for a while ambiguous and its evolution slow. Multiple brain-abscesses, as experience shows, are rare. Methodical daily exploration of the cerebral wound is advised. During the early period of the dressing drainage should be maintained, not only so long as discharge persists, but till granulation has proceeded so far as not to admit a drain-tube.

H. Clayton Fox.

REVIEWS.

On Treatment. By HARRY CAMPBELL, M.D., B.S., F.R.C.P. London: Baillière, Tindall & Cox, 1907.

The writings of this broad-minded and philosophic physician can never be read without profit, and the present volume is the most recent evidence in support of this opinion. Some of the characteristics set forth as desirable in the physician are equally important in the specialist, and this book contains many hints which we may well take to heart. In regard to medical education Dr. Campbell deplores the disproportionate amount of the student's time which, for examination purposes, is devoted to such minute details in anatomy and physiology as the average student dismisses from his mind as soon as his ordeal is past, and which the average practitioner scarcely ever finds applicable to his everyday therapeutics. He asks for the devotion of more time to the study of clinical methods and to the acquisition of a knowledge of much which is apt to be relegated entirely to the specialist. The student is advised not to lose the opportunity of clerking in the special departments. In this we heartily agree with him. The student will in practice find his work invested with greater interest and certainty, and he will be in a position to treat by himself many cases which he would otherwise have to submit to the specialist. The latter will also find that his services will be called into requisition at an earlier period in the case than is usual, and that the results will be more certainly and more speedily obtained. Dr. Campbell advises moderation in exercise, and points out that undue muscular exertion must be followed by an increase in muscle-katabolism (p. 271). The various kinds of exercise are discussed, the best being walking or horse-exercise (p. 277, etc.). Food in relation to health is one of the author's favourite subjects, and the chapter on "Proteids, Saccharids and Fats," which ought to be dry reading, is quite fascinating, as is also the

one dealing with "the successive changes which man's diet has undergone during his evolution from the ape." Mastication has three chapters devoted to its consideration, and great importance is attached to the necessity of exercising the masticatory apparatus on hard food. It is to pap-feeding that he attributes the frequency of adenoids among the children of civilised communities, and he submits that a child whose nasal apparatus and naso-pharynx are well grown (active mastication favours their development) and habitually bathed in a stream of pure blood and lymph, this stream being periodically accelerated by an ample and vigorous use of the masticatory muscles, is unlikely to contract adenoids (p. 344). It is interesting to find the expression of the opinion that, "it is often possible greatly to improve health by restricting the carbonaceous food and allowing an abundance of proteids" (p. 389) as a change from the faddists' parrot cry of "cut down or avoid animal diet," which for so long has grated on the ears of the reasonable searcher for physiological truth. Reasonableness is the key-note of Dr. Harry Campbell's teaching, and those who wish to study "treatment" in its light will read every page of this work with pleasure and profit.

Corps Thyroïde, Myxœdèmes, Thyroïdites et Strumites, Goîtres, Cancers Thyroïdiens (Thyroid Body, Myxœdema, Thyroiditis and Strumitis, Goitres, Thyroid Cancer). By LÉON BÉRARD. Paris: Baillière et Fils, 1908.

If the authors of the other sections of the "Nouveau Traité de Chirurgie," edited by MM. le Dentu and Delbet, acquit themselves of the task allotted to them as fully and instructively as M. Leon Bérard has done in the one before us, the "Traité" must be a work of the very highest value. There is very little information about the thyroid gland which M. Bérard fails to afford us. Among his most interesting chapters are those dealing with the various forms of thyroiditis, strumitis, cancers of the thyroid body or of goitres, and particularly the surgical aspects of exophthalmic goitre. The objections to tracheotomy in cases of pressure exercised by the diseased thyroid body on the trachea are vigorously stated, in view, particularly, of the tendency to fatal broncho-pneumonia already existing and likely to be provoked by the operation (pp. 278, 285). He is more in favour of dislocation (exothyropexy) or partial extirpation. The diagnosis of goitres from other cervical swellings and the various forms from each other are excellently schematised (pp. 249, etc.). In regard to exophthalmic goitre attention is drawn to the difference between the genuine Basedow's disease and the "false" forms, secondary or reflex. The "secondary" forms are those in which a pre-existing ordinary goitre comes to press on the cervical sympathetic and thereby to excite the symptoms of "Basedowism." It is in them that surgical interference is calculated to be beneficial (p. 402). In true exophthalmic goitres everything medical and hygienic should be tried for months, but if circumstances prevent this, the ligature of the arteries and subsequently partial ablation are advised as the operations to be selected. If the "Basedowism" is present with little or no goitrous swelling the resection of the upper sympathetic ganglion is recommended. The details of this operation are given as carried out by Jaboulay and Lorenz (p. 400, footnote). The work winds up with the quotation of Kocher's postulate: "Physicians, send us your patients with Basedow's disease early and we will return them to you in a condition to derive benefit from medical treatment."

THE
JOURNAL OF LARYNGOLOGY.
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

LARYNGOSTOMY FOR LARYNGEAL STENOSES.

ONLY those of our readers who have not had to deal with cases of stenosis and atresia of the larynx following diphtheria and other infectious disorders will fail to appreciate the subjects dealt with in the recent articles in this JOURNAL, notably one by Professor Navratil, entitled, "A Contribution to the Surgical Treatment of Laryngeal Stenosis" (JOURN. OF LARYNGOL., RHINOL., AND OTOL., May, 1908, p. 238), and another by Drs. Sargnon and Barlatier (July, 1908, p. 365, August, p. 411, September, p. 475), on the operation of laryngostomy, to which reference was made in Professor Navratil's lecture. Those, however, who have had to deal with such cases, will realise the difficulty in treating them and the almost impossibility of effecting a successful result. We feel, therefore, that we have rendered a service in placing these two very valuable communications at their disposal, and that the article by Drs. Sargnon and Barlatier, giving the details of the operation and after-treatment, will be highly valued by the class of readers we have referred to. The operation consists in the slitting up of the trachea, cricoid and thyroid cartilages, and the stitching of the skin to the mucous membrane so as to form an elongated gutter in the middle line of the neck. By an ingenious device an india-rubber drainage-tube smeared with vaseline and plugged with ganze is placed in this gutter so as to keep it open

and to lead to a still wider dilatation where desirable. The French authors attribute very remarkable efficacy to this method of *dilatation caoutchoutée*, and in their paper will be found a description of many ingenious little devices to which they have been led as the result of experience in the conduct of such cases. The operation on paper looks fairly simple, but when the structures are embedded in cicatricial tissue resulting from former unsuccessful operations, and when, moreover, the lumen is so entirely occluded as to prevent the introduction of even the finest director, the difficulty is necessarily enormous, but in the less extreme conditions it is comparatively easy. One very anxious class of case is that in which the cartilages have shrunk and the framework of the larynx has atrophied, or at least failed to develop owing to the absence of function, and the question arises as to the ultimate results in such cases after laryngostomy is performed. Dr. Barlatier, however, in a monograph on the subject ("La Laryngostomie dans le Traitement des Rétrécissements du Larynx," Paris, 1908, p. 47), tells us that actually the cartilages have been observed to undergo remarkable development after the operation has been carried out. The same author, in considering the results as regards the voice, reports (p. 87) that out of eleven cases, in six the voice was good, or at all events satisfactory, and in three of them the patient was able to sing. Much, of course, depends upon the condition of the vocal element in the larynx at the time of the operation, but such results are eminently encouraging in a condition which was previously scarcely within the reach of practical treatment. It need hardly be said that the operation is ultimately completed by closure of the cervical opening by means of the plastic operation. We recommend the study of these articles to all our readers, whether familiar or not with the class of case to which they refer.

DEATH OF PROFESSOR BEZOLD.

OUR readers will hear with great regret of the death of the renowned Professor of Otology of the University of Munich. We hope to publish a short review of his work and career.

LABYRINTHINE TESTS.

MR. TWEEDIE has drawn our attention to the fact that in our otherwise excellent abstract of the Proceedings of the Oto-Laryngological Section of the British Medical Association, the report of his paper entitled, "Some Observations on the Results of the Application of Bárány's Tests to 'Deaf-Mutes'," failed to convey to the readers the points which he meant especially to accentuate. He says: "My paper was a description of the results to Bárány's tests which I carried out on deaf-mutes with the view of establishing or confuting the fact that 'vestibular' nystagmus was dependent on experimental stimulation or pathological lesions of the eighth nerve, and not in any way to prove that children in a 'deaf-mute' school were not all totally deaf, which, of course, is known well to all, etc., etc." We regret this defect in the report, and have much pleasure in producing in full, by permission of the Editors of the *British Medical Journal*, his paper as read at the meeting. In addition we gladly append to that paper the tabulated statement of the tests as carried out by him. We are sure that the details of this objective investigation will be highly appreciated by our readers.

DR. PIKE's valuable contribution on the labyrinthine tests as applied to subjects who were not necessarily deaf-mutes, in our present number, will be found most instructive in regard to the use of the caloric, rotatory, and other tests introduced by Bárány, and the tabulated details which will be given in our issue for December will complete a valuable record.

RECENT METHODS OF EXAMINATION OF THE NOSE AND THROAT.

A CROWDED audience, numbering over a hundred and fifty members of the profession, attended to hear the address by Dr. John Macintyre, F.R.S.E., on the occasion of the opening of the winter course of lectures at the Central London Throat and Ear Hospital.

Dr. Macintyre chose for his subject "The Recent Methods of Examination of the Nose and Throat," and explained that he had done so because of the great advances which had been recorded in history of this special branch of surgery since the year 1895. We hope to publish in full detail, with illustrations, Dr. Macintyre's account of many of the methods which are described cursorily in the present report.

By way of comparison he first of all referred to the difficulties which men had experienced in the examination of some parts of the respiratory tract before the ever-memorable discovery of Garcia, and pointed out the tremendous influence which the work of the latter had upon the history of surgery when taken up by Turck and Czermak.

Looking back upon the fact it seems a strange thing now that the simple arrangement of a reflecting mirror placed at a suitable angle to the stem should so long have remained undiscovered. Much as the laryngoscope had done, however, it had its limitations, and it had now been found that it was only by direct inspection of the passages that we were able to make a complete examination of the nose, throat, windpipe, bronchial tubes and gullet.

The advance here indicated could not have taken place had Reichert long ago not pointed out that it was possible to clear away the apparent obstruction of the epiglottis and base of the tongue. When this was realised operators like Kirstein showed that the larynx and part of the trachea could be seen, thus paving the way for the work of Killian, who, by means of straight tubes, was able to explore a large portion of the lower respiratory tract. The same difficulty was not experienced in connection with the œsophagus, but on much the same principle Mikulicz, v. Hacker and others had made the way clear for the thorough inspection of the gullet.

Dr. Macintyre showed a series of instruments and stated the various stages in developments of these methods, and also showed a number devised by Chevalier Jackson, Brünings, and himself whereby the matter could be simplified. The question might be asked, how did it take us until the end of the last century before this work became thoroughly practical? Dr. Macintyre ascribed the delay to several facts. In the first place, dextrous as special surgeons had become in the use of the laryngoscope, it required time, patience, and perseverance in the development of the instruments and also their use by the surgeon. In the second place, the introduction of local anæsthesia had made things much easier for the laryngologist and greater progress was made possible. Even now we had to remember that in the most serious work general anæsthetics had sometimes to be employed. Last of all, science had to await the developments in physical science which gave us the electric light in a practical form. For this special work stationary sources of illumination were useless, and nothing had contributed more to the success of the methods of direct

inspection of these passages than well-constructed incandescent surgical lamps.

Dr. Macintyre showed a number of pictures of electric laryngoscopes and rhinoscopes which he himself had devised, the first instruments of the kind ever made in this country, and which were published in January, 1886, but owing to the heating and short life their use in general practice was impossible. It took ten years after the date mentioned before the present useful lamps were taken seriously up by instrument makers and brought to a stage of perfection.

The lecturer also referred to the influence in diagnosis of the accessory cavities of the head and larynx by the methods of transillumination, and referred to the recent advance made in this department.

Dr. Macintyre pointed out the second great agent which had been employed of late in these regions, namely, X-rays. Here there had been no process of gradual evolution, but in the year 1895 Professor Röntgen's great discovery came as something entirely new and placed a new agent at the disposal of the surgeons and physicians, because while it was the first employed in surgery its development in medicine was only a question of time.

By this new agent, either by a photographic process or by the indirect method of the fluorescent screen which enables us actually to see the shadows of the organs, or by means of the orthodiagraph, an apparatus for recording diagrammatically what the screen shows us, results can now be obtained of immense value to the physician as well as to the surgeon. In some directions, especially in the earlier stages of the discoveries, examination of the respiratory tract and the œsophagus by direct vision, and the investigation of the same regions by means of the X-rays, were thought to be two methods which to an extent rivalled each other. That is not the case, however. They are in the strictest sense complementary the one to the other, because while by the direct methods of observation we can only see the surfaces of the mucous membranes or what is lying in the cavity, by the application of the other, the radiograph, or the fluorescent screen, we judge of conditions in the tissues themselves or in the large cavities of the body. It need hardly be said that the examination of the chest, the neck, the pharynx, nose, and accessory sinuses must be of the greatest importance to any one engaged in our special department.

Dr. Macintyre traced the development of the application of X rays in our special department, and showed a large number of photographs of his own work taken as early as 1896. These included the first photographs taken of the larynx, foreign bodies in the cavities, the nose, throat and its accessory cavities, and gullet. He next traced the steps in improvement by means of which he was able to take instantaneous photographs of the chest and other parts of the body, and a large number of photographs were shown on the screen and otherwise, simple and stereoscopic, of inter-thoracic conditions. Thanks to Mr. Schall he showed them the most recent improved apparatus taking X-ray photographs, as suggested by Dr. Groedel and Mr. Horne.

In conclusion Dr. Macintyre said: Briefly stated, therefore, what is meant more particularly by recent methods of diagnosis includes for the most part what has taken place from 1895 as contrasted with what took place after the introduction of the laryngoscope and before that year. It might be summed up by saying we mean the methods of direct inspection of the cavities and passages with which we have dealt; to a certain extent also with transillumination, and lastly, the X rays, whether by means of the radiogram or fluorescent screen.

With regard to the first mentioned, namely, direct inspection of the passages, at first it was thought that its great use would be found in the detection of foreign bodies, but recent work has shown that not only will this be the case, but it is certain to reveal much hitherto unknown about the morbid conditions present in inflammatory affections, neoplasms, simple and malignant, tubercle, specific disease and their sequelæ. No one who has perused what will become a classical work, namely that of Dr. Hermann von Schrötter, of Vienna, can fail to subscribe to this statement, and the same may be said of the work of many of those whose names have been already mentioned in this address.

Speaking of transillumination, Dr. Macintyre was convinced that in the nasal cavities at least, and in conjunction with the X-rays, it will play a more important part in our studies than we have hitherto suspected.

With regard to the X-rays it is not too much to say that their importance has not yet been fully realised. That they have done much and will do more in the study of normal anatomy no one can doubt, whether we regard the subject from the embryological or mature structure; and the study of diseased condition of the bones and injuries has already reached a level not hitherto attained.

Further, during life, the exploration of the cavities by means of dense fluids, such as bismuth or metallic sounds, will yield great important results in the study of the nose, trachea, and oesophagus.

Not only has anatomy gained much, and may gain more, but much will be done to facilitate the study of physiology, as shown by the work of Merkel and Brücke in the study of the movements of the parts in speaking; also by the work of Zwaardemaker, Scheier, Mandelschon, Gutmann, and others in the function of deglutition. The study of the movements by means of the fluorescent screen of the diaphragm, the heart in normal conditions as well as in morbid, also in pleurisy, emphysema, empyema, aneurysm, and new growths, by comparison has already helped much in the study of physiology.

In detecting the formation of pus in cavities, the photographs shown to-day will prove that in the regions of the frontal sinus, antrum and thoracic cavities much valuable information can be obtained. With regard to the chest, it need only be said that ever since Buchert, in 1896, published the results of his study of tuberculosis in the lungs physicians and surgeons have been much indebted to numerous experimenters, and the early diagnosis of tubercle is often made by this method when it would be almost impossible to do so without its aid. Again, pleurisy, emphysema, empyema, enlarged heart, aneurysm, malignant disease in the mediastinal and thoracic conditions are now detected and recorded with a facility and success which few could have expected a few years ago.

When we come to the question of foreign bodies no one has the slightest doubt that direct inspection of the passages and the complementary method of investigation by means of the X rays have yielded results hitherto quite unattainable. The work of many workers in every clinical centre in the world proves this. Within the last twenty months over 150 cases of foreign bodies have been sent to the Glasgow Royal Infirmary.

Dr. Macintyre said it had been his good fortune and privilege for a number of years to have much assistance from the late Lord Kelvin, who, in conversation with him one day, said nothing gave him greater pleasure than to reflect upon the efficient condition of medical training in the present day, because no sooner was a discovery made in the physical or any other laboratory than it became evident that in every school of medicine we had a number of workers ably educated and capable of applying it at the bedside. Indeed, in many instances, he added, it appeared as if the

medical men took the discovery out of the hands of the physicist and applied it to the relief of human suffering before the discoverer himself had time to appreciate its importance or to investigate its nature. Dr. Macintyre repeated that in our special department so great has been the change that many of the chapters in our textbooks would have to be re-written, and when these were read it was to be hoped that the judgment of the surgeons of the future would justify the claim that in the regions of the respiratory tract and upper alimentary canal, those engaged in these special departments have shown that they were desirous, at least, of taking advantage of any and every scientific advance which the collateral sciences placed at their disposal.

SOME OBSERVATIONS ON THE RESULTS OF THE APPLICATION OF BĀRANY'S TESTS TO "DEAF-MUTES."¹

BY ALEX. R. TWEEDIE, F.R.C.S.,
Nottingham.

SINCE there is considerable uncertainty as to the relation of the results of these tests to both the pathological and physiological conditions of the semi-circular canals, it seems desirable to investigate as many known existing lesions of the eighth nerve as possible. With this object in view I examined the thirty-three children attending the Nottingham Board of Education Deaf-Mute Centre, for which opportunity I must acknowledge my indebtedness to Dr. Gray, the aural surgeon in charge, and to Mr. Green, the schoolmaster, who rendered me every possible assistance.

My idea was that if positive "normal" results to these tests *were* dependent on a functional labyrinth, no response would be elicited in those cases in which hearing was completely lost or undeveloped. The tests adopted were: *Thermic*: syringing the ear with cold water; that is at the temperature at which it came from the tap; *Electric*: application of the anode and cathode immediately in front of the tragus of each ear with a continuous current of from 20 to 30 volts, and 1 to 2 milli-ampères *viâ* a resistance from the main; and *Rotatory*: rotation of a patient on a stool in both directions with the head erect and eyes closed.

As many of these so-called "deaf-mutes" have some power of

¹ Read in the Section of Laryngology and Otology of the British Medical Association, Sheffield, July, 1908, by kind permission of the editors.

hearing remaining, this function was first also tested both as regards their perception *via* the air and *via* the bone. In this way eight were eliminated, but were subjected to all the tests as well as the remaining twenty-five who were found absolutely deaf.

The outer ears were also examined on each side, cleansed if necessary, and the condition of the membrane and middle ear noted. The accompanying table is a digest of the results found. It will be seen that of the eight in whom some power of hearing was still present none responded "normally" to all these tests. All responded to the thermic except one, all to the rotatory tests except two, whilst none afforded "normal" positive results to the electric stimulation. In one patient who had a very considerable amount of hearing no response could be elicited to any of the tests—the reason for which I was unable to determine. Six, however, out of the eight reacted "normally" to the thermic and rotation tests. As to these patients who were judged totally deaf—twenty-five in number—twelve were found quite irresponsive to all the tests, and none of the remaining thirteen responded "normally," indeed, only one afforded possibly "normal" results to only two of the tests (thermic and rotatory), all the others that did react showing irregular or "abnormal" results.

Only two of the whole thirty-three responded "normally" to the electric tests.

Thus the thermic and rotatory tests would appear to be probably the most reliable, and certainly, in the case of deaf children, the most easily applied.

I would refer those who are further interested in this means of diagnosis to an excellent monograph by Dr. Neumann, of Vienna (*Die otitische Kleinkirnaabszess*, 1907).

Obviously, the few data on which I have based this paper are insufficient in themselves for the purpose of forming any definite conclusions or making any dogmatic statements, and too much caution cannot be exercised in determining their import; but I think, on the whole, the results may be considered corroborative of the view that so-called "vestibular" nystagmus *is* dependent on some lesion of the eighth nerve and the experimental elicitation of these phenomena on its functional integrity.

I have ventured to submit these results of my observations in the hope that, in conjunction and by comparison with other observations, some progress will be made towards establishing their value and more accurate significance, thus affording some help in the differential diagnosis between labyrinthine lesions and

INVESTIGATIONS ON "DEAF MUTES"

Name and age.	Hearing.	Thermic. Cold water only used.	Anode, left.	Anode, right.	Kathode, left.	Kathode, right.
Arthur B. (13)	Fair	L. ear=Nyst. to R.	0	Not tested	Rotatory to left	Not teste
Bernard B. (12)	Very fair	L. ear=Rot. nyst. to R.	0	„	0	„
Will. T. (15)	„	L. ear=Lat. nyst. to R.	Lat. nyst. to R. and L.	Lat. nyst. to R. and L.	Nyst. to R. and L.	Nyst. to R. and L.
Will. V. (12)	„	L. ear=Lat. and rot. nyst. to R.	Not tested	0	Not tested	Nyst. rot and lat. to L.
Mabel M. (10)	Fair	L. ear=Rot. nyst. to R.	0	0	0	?Slight to R.
Amy B. (16)	„	L. ear=Lat. nyst. to R.	0	0	0	0
Ruth C. (15)	Slight	R. ear=Lat. nyst. to L.	Rot. to R.	Rot. to L.	0	0
John B. (15)	Very fair	0	0	0	0	0
Ernest H. (7)	0	0	0	Not tested	0	Not teste
Patience D. (11)	0	0	0	0	0	0
Lilly M. (10)	0	0	0	0	0	0
Horace W. (6)	0	0	0	0	Not tested	Not teste
Mary L. (5)	0	0	0	Not tested	0	„
Percy S. (15)	0	0	0	0	0	0
Jesse G. (12)	0	0	0	0	0	0
Fred. C. (11)	0	0	0	0	0	0
Dorris S. (9)	0	0	0	0	0	0
Elsie W. (7)	0	0	0	0	0	0
Eliza C. (12)	0	0	0	Not tested	0	Not teste
G. W. (15)	0	0	0	0	0	0
Dorothy C. (8)	0	0	Rot. to R.	Rot. to L.	Rot. to L.	Rot. to R.
Ethel B. (10)	0	0	0	0	0	0
Maggie P. (11)	0	0	0	0	0	0
Jesse M. (16)	0	0	0	0	0	0
Tom M. (9)	0	0	Irregular movements with all applications			
J. W. (11)	0	0	0	0	Slight lat. to L.	? to R.
Elsie S. (10)	0	0	Very slight to R.	Very slight to L.	Rot. both ways	Rot. to L.
Jo. D. (12)	0	0	Irregular movements with all applications			
Cissie M. (12)	0	R. ear=Lat. and rot. to R.	Rot. to R.	Rot. to L.	Rot. to L.	Rot. to R.
Lilly M. (11)	0	L. ear=R. nyst.	Unaffected by the application of battery			
Maggie W. (10)	0	„ „ „	0	0	0	0
Will. T. (11)	0	„ „ „	0	Not tested	0	Not tested
Elsie H. (10)	0	L. ear=Rot. to R.	Slight rot. to R.	0	0	0

AS TO "LABYRINTHINE NYSTAGMUS."

Rotation to right.	Rotation to left	Remarks.	Summary.
Normal	Normal	Both middle ears disorganised; but membranes apparently intact. Has two deaf mute uncles.	All responded to thermic except one; all to rotatory except two; none to electric.
"	"	Both middle ears disorganised; membranes apparently intact; very nervous; lupus of face.	
"	"	" Born deaf."	
"	"	" Born so." ? A large element of middle ear deafness.	
0	0	" Convulsions " at 15 mos. old. Mentally deficient; very poor memory.	None responded to any test.
Normal	Normal	" Congenital."	
"	"	" Born deaf." Adenoids.	
0	0	Both membranes intact; measles in infancy; mentally	
0	0	" Inflammation of brain " at 16 mos.; convulsions; never spoken or heard; membranes intact; mid. ears disorganised.	
0	0	Deaf since measles at 2 years; followed by pneumonia.	
0	0	" Born deaf." Only child.	
0	0	Parents 1st cousins. " Brain fever " at 18 mos. Half nephew to J. W. (11).* <i>Vide infra.</i>	
0	0	" Deaf always." Not attributed to any illness. Membranes intact; some disorganisation of mid. ears.	
0	0	Scarlet fever at 4 years.	
0	0	" Born deaf."	
0	0	" Born deaf." ? H. S.; 16 born, 10 alive; one other with " ear trouble;" 2 died in infancy of " brain trouble."	
0	0	Scarlet fever at 4 years; membranes ? present; mid. ears disorganised.	
0	0	" Gradually became deaf from 18 mos." Only deaf child out of a family of " several."	
0	0	" Born deaf." " Other " children, but not deaf, but two of them bad stammerers.	
0	0	" Deaf at 2 years." ? Cause.	
0	0	" Totally deaf from meningitis at 6 mos." Only one other child, and that not deaf.	Only responded to one test.
Lat. and rot. to L.	Lat. and rot. to R.	" Born deaf." Only child. " Mother deaf till this child was born, and then heard well."	
erysight lat. to L.	0	" Brain fever " at 4 years.	
Normal	0	" Attributed to a fall at 1 year and 5 mos."	All responded "irregularly;" three of these had "spontaneous" nystagmus.
0	0	Deaf at 18 mos. " from vaccination;" R. eyeball disorganised at the same time.	
0	Slight to R.	Measles at 6 mos. Has a half nephew deaf.* <i>Vide supra.</i>	
Lat. and rot. to L.	Both ways	" Born deaf." No other deaf child in the family.	
Nyst. to L.	Nyst. to R.	" Deaf at 1 years; slow fever." Has <i>spontaneous</i> nyst.; staggers in gait. Past healed middle otitis.	
Normal	Normal	Disorganisation of both mid. ears and membranes. Has <i>spontaneous</i> nyst.	
To left	Both ways	Typhoid at 1½ years. Has <i>spontaneous</i> nyst.	
Normal	Normal	" Congenital;" 6 in family, 3 deaf.	
0	Nyst. to R.	" Pneumonia " at 9 mos.; mid. ears disorganised; membranes intact. " Never heard or spoken." Mouth breather.	
Normal	Normal	" Born deaf." Only child. Mother said to be deaf till this child was born, and then to hear normally.	

possible coincident cerebellar disease; and also to help in deciding to which side certain intra-cranial symptoms are due in cases of bilateral affections of the internal ear.

By "normal" reaction is meant, in this paper, those results which these tests are supposed to afford physiologically; namely, under the influence of an "excitant" affecting either labyrinth a "jerky" nystagmus is produced, composed of a quick movement of the eyes towards the same side, and a slow return in the opposite direction, whilst "depressants" produce a similar nystagmus, but "directed" to the opposite side.

The "excitants" include the application of hot water, the cathode of a galvanic battery, and rotation of the body and head in the opposite direction to the side tested.

The "depressants" are cold water, the application of the anode of a galvanic battery, and rotation in the same direction as the side in question.

AN EXAMINATION INTO THE CONDITION OF THE VESTIBULAR APPARATUS IN A SERIES OF CASES OF DEAFNESS OF NON-SUPPURATIVE ORIGIN.

BY NORMAN H. PIKE, M.B., B.S. LOND.

Now that we have at our disposal definite clinical methods for examining the functions of the vestibular apparatus as distinct from the cochlear, this investigation has been undertaken with the object of inquiring into the condition of the vestibular apparatus in cases of deafness in which there has been no middle-ear suppuration.

I have been especially fortunate in having received instruction in this subject from Dr. Bárány, and I must take this opportunity to thank him for all his kindness and help.

My thanks are also due to Professor Urbantschitsch for allowing me to work in his clinic in Vienna and for the use of very valuable material. The explanation of the actions resulting from the clinical methods employed are those given in Bárány's book "Physiologie und Pathologie des Bogengang Apparates," and to him is due the credit of having made clear much that before was dark in this subject.

By the vestibular apparatus is meant the membranous parts of the semi-circular canals with the utricle and saccule and the contained endolymph.

I shall not go into the anatomy of these parts, but the following simple means employed by Bárány will quickly give the relative positions of the three semi-circular canals when the head is upright.

Lay the arms against the sides of your body, and then, bending the elbows at right angles palms upwards, bring the hands so that they meet in the middle line, the middle fingers touching and enclosing an angle of 90° . Now, if you wish to represent the canals of the right side you must leave the right hand in its position, and, bending the fingers of the left hand at right angles to the palm, place the hand thus bent on the right hand, so that the ulnar borders of the palms will lie together and the little finger of the left lays at right angles to the joints of the right hand.

Now, in this position the palm of the right hand will represent the plane of the right horizontal canal, the fingers of the left hand the plane of the anterior vertical canal, and the palm of the left hand the plane of the posterior vertical canal of the right side. The convexity of the three canals is turned towards the free borders of the hands, *i.e.* the horizontal outwards, the anterior vertical upwards, and the posterior vertical upwards and backwards. From this scheme it is clear also that neither the anterior or posterior vertical canals lie in the sagittal plane, the anterior enclosing an angle of 45° open anteriorly with the sagittal plane, the posterior a similar angle opening posteriorly. Also if you compare the relations of the positions of the canals of the right and left side you will at once notice the right anterior vertical and left posterior vertical canals lay in the same plane, while at right angles to them lie the left anterior vertical and right posterior vertical canals.

The ampullæ of the horizontal and anterior vertical canals will lie at the base of the first finger of the right hand. The ampulla of the posterior vertical canal will lie at the base of the metacarpal bone of the little finger of the left hand. It is obvious that the planes of the canals alter with each movement of the head; for instance, if the head is bent forward 90° the horizontal canals become vertical and so on.

The ampullæ contain the special nerve-endings of the vestibular portion of the eighth nerve with their special hair-cells and cupula. The cupula is a homogeneous mass and moves with each movement of the endolymph, and so draws the hair-cells and stimulates the nerve.

Whenever the cupula is moved reflex vestibular nystagmus is produced, provided the rest of the reflex path is intact.

Ewald, of Strassburg, showed this in 1892 by an experiment he did on the right horizontal canal of a pigeon. An opening was made in the bony canal some way from the ampulla, and in this a small piece of lead was pushed, thus completely blocking the canal. Another opening was bored between this point and the ampulla, to which the nozzle of a syringe was fixed by which compression or suction could be made. By compression the cupula would be pushed away from the canal, and in this case Ewald constantly found a slow horizontal movement of the head and eyes to the left. By suction, through the cupula being moved in the opposite direction there was a slow horizontal movement of head and eyes to the right.

When there is a slow horizontal movement of the eyes to the left there is a quick return to the right, and we speak of this as horizontal nystagmus to the right. So in the case of compression Ewald obtained horizontal nystagmus to the right when experimenting on the right horizontal canal.

It is mainly by observing the nystagmus after employing certain clinical methods that we judge of the condition of the vestibular apparatus.

There are two forms of nystagmus to be distinguished :

(1) In this form there is a quick undulating movement of the eyes, both movements following equally quickly and so one cannot distinguish a direction of the movement.

(2) In which there is a slow movement with a quick return. To this class nystagmus of vestibular origin always belongs.

Vestibular nystagmus has another peculiarity, it becomes most distinct when one looks in the direction of the quick movements, but becomes weakened or altogether stops when one looks in the opposite direction.

Nystagmus, Form (1), does not alter in this way. We always speak of the direction of the quick movement as the direction of the nystagmus, therefore horizontal nystagmus to the left is a nystagmus which strikes towards the left side of the patient and which becomes stronger on the patient's looking towards the left, weaker or stopped altogether if the patient looks to the right.

It is convenient to write the various forms of nystagmus as follows :

———— *r* meaning horizontal nystagmus to the right on looking
to the right.
l *f* meaning rotatory nystagmus to the left on looking
to the left.

The clinical methods employed have been :

(1) The turning reaction, *i. e.* an observation of the nystagmus produced after turning the patient and counting the duration of the same.

(2) The caloric reaction, *i. e.* the observation of the nystagmus produced by syringing the affected ear with cool water.

(1) *The Turning Reaction.*—This is elicited in the following manner: The patient is placed in a revolving chair to the back of which a vertical bar is fixed in order to facilitate turning. He sits with the head in the upright position and the eyes are covered with opaque spectacles. He is then turned ten times to the right, *i. e.* in the direction of the hands of a clock, and the duration of the nystagmus produced to the left, with the patient looking steadily into the opaque spectacles, is counted by means of a stop watch. He is then turned to the left in the same manner. The turning should always be done at a uniform rate and the stopping should be done suddenly.

The result is written as follows: $10 \times R = 25''$, meaning that turning to the right 10 times produced nystagmus to the left lasting 25 seconds.

The explanation of why turning ten times to the right should produce nystagmus to the left is as follows. If one turns a patient with the head in the upright position ten times to the right, at the beginning of the movement there will be a displacement of the endolymph in the right horizontal canal from the canal towards the ampulla (remember the ampulla lies at the anterior end of the horizontal canal), just the same as if you are standing on a tram which suddenly starts you tend to fall backwards, so at the beginning of turning the endolymph in the canal remains stationary for a moment, and does not at first participate in the turning movement. At the beginning, then, of turning to the right there will be a movement of the endolymph in the right horizontal canal from the smooth end towards the ampulla moving the cupula, and producing, as proved by Ewald's experiments, nystagmus of the eyes to the right. When we consider the smallness of the membranous canal and the greatness of the friction it is evident that this movement is only very slight.

The amount of this movement depends on the quickness of the beginning of the turning, and it is only possible to observe it with the aid of a revolving platform, on which the examiner also sits, as has been done recently by Bárány.

After the turning movement has been in progress a few

seconds the endolymph will move with the bony canals just as if it was frozen in, and only on suddenly stopping will there again be an independent movement of the endolymph. This movement will be in the opposite direction to that produced at the beginning of the turning. Whether this movement is greater or more continuous than that produced at the beginning of turning depends entirely on the suddenness of the stopping as compared with the beginning of the turning (just as in the example of the train, when the train suddenly stops you tend to fall forward). We see, then, that on suddenly stopping after turning ten times to the right there will be a movement of the endolymph in the left horizontal canal from the smooth end to the ampulla, moving the cupula and producing nystagmus to the left. At the same time in the right horizontal canal the endolymph will move from the ampulla to the smooth end of the canal. Both will act together in producing the nystagmus to the left, only the left takes the greater part (two thirds) of it, the right taking one third. Clinically, then, if we wish to examine into the irritability of the right vestibular apparatus we turn to the left and observe the nystagmus produced on suddenly stopping, and to examine the left vestibular apparatus we turn to the right.

On turning with the head in the upright position the disturbance of the endolymph will be chiefly in the horizontal canal. The magnitude of the disturbance of the endolymph diminishes with the size of the angle the canal makes with the horizontal plane. If the canal lies entirely in horizontal plane this disturbance will reach its maximum. If it is at right angles to the horizontal there will be practically no disturbance of the endolymph.

With the head, then, in the upright position and turning in the horizontal plane it is the horizontal canal which is affected, the anterior and posterior vertical canals being unaffected.

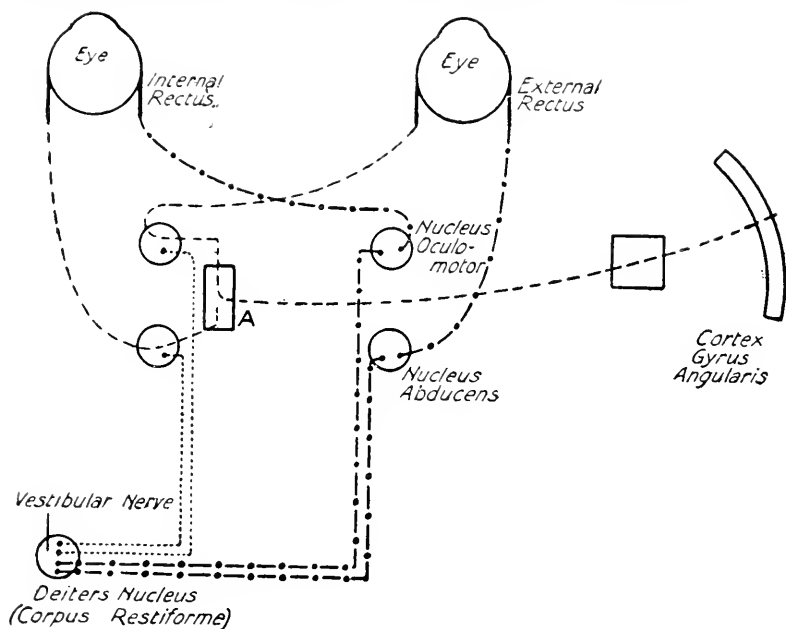
By bending the head 90° either forward, backward, or to the side the vertical canals will become in the horizontal plane and will be affected on turning.

It is a law that each canal produces an eye movement in its own plane. Practically several canals are called simultaneously into action, and we have either a rotatory or a horizontal eye movement.

The figure represents a scheme for horizontal nystagmus to the left from stimulation of the left labyrinth. The scheme shows the path of the slow and quick component of the nystagmus and why,

on stimulating the left Deiter's nucleus, you get the slow movement to the right and the quick movement to the left.

If you had a lesion at A, you will have all voluntary movements of the eye abolished, and by stimulating the left labyrinth (by turning) you will only have the slow component of the nystagmus, and so the eyes will be turned to the right and fixed there, *i. e.* away from the diseased side. If you had a lesion of the cortex, or anywhere between the cortex and A, you will have on turning both components of the nystagmus, but voluntary movements abolished. This scheme also shows why on looking away from the direction of



A. Supra-nuclear centre situated in the pons and corpora-quadrigenima, for associated eye movements. (From Bárány's "Physiologie und Pathologie des Bogengang-Apparates.")

the nystagmus, *i. e.* to the right, the nystagmus will be inhibited, as in this case the stimulation from the cortex will act in conjunction with the slow movement, whereas on looking in the direction of the nystagmus, *i. e.* to the left, the stimulation from the cortex will be antagonistic to the slow movement.

The effect of complete sudden removal of one labyrinth, say by operation, is to cause strong nystagmus to the opposite side. This after a time, generally in a few weeks, will lessen until it may entirely disappear.

In the cases of a central lesion, say a tumour or abscess in the

posterior fossa pressing on Deiter's nucleus, the nystagmus will be strong but does not weaken after a time. I do not place so much reliance on the turning reaction as on the caloric reaction. But in some cases, where for special reasons the caloric reaction could not be taken, sole reliance has been placed on the turning method. One infers that the vestibular irritability is normal when the nystagmus produced by turning to right and left has a duration of twenty-five seconds or over, *vide* Case 31. Here there was practically the same duration of the nystagmus after turning to the sound as to the affected side. The time since the accident was two years, and accommodation of the centre has taken place.

(2) *The Caloric Reaction.*—This can be produced with either hot or cold water. In all the cases in my tables it has been done with cold water producing nystagmus to the opposite side from the ear syringed. An attic cannula has been passed into the meatus, and this has been connected by means of a rubber tube with an ordinary air-inflation rubber Politzer balloon in which the cold water has been placed. The balloons hold approximately $\frac{3}{4}$ litre. The temperature of the water has been between 15–20°1. In most cases $\frac{1}{4}$ to $\frac{1}{2}$ of a balloon will produce a reaction. The strength of the reaction has been noted, and where you get—say with $\frac{1}{4}$ balloon of cold water—strong nystagmus in all directions of looking, *i. e.* on syringing the right ear nystagmus to the left on looking to the right, this has been noted as a strong reaction. In other cases where $\frac{1}{4}$ balloon has produced definite movements on looking in the direction of the nystagmus and also on looking straight forward, this has been called a normal reaction. A weak reaction has been where with a full balloon slight nystagmus has only been produced on extreme ocular abduction in the direction of the nystagmus. It has been found that it is not necessary to go beyond one balloon of water; if this does not produce a reaction no further amount of syringing will produce one.

In the tables, then, $\frac{1}{4}$ balloon, R. normal, will mean that by syringing in the right ear with $\frac{1}{4}$ balloon of cold water, nystagmus to the left is produced of a normal strength. To explain this reaction we must consider that the labyrinth is filled with a fluid at the body temperature. The cold water acting through the bony wall will cool this fluid and a current will be produced, as the fluid cooled will sink to the bottom and hence the cupula will be moved. In the upright position of the head this will chiefly affect the anterior vertical canal, but it is obvious that in different positions of the head the different canals will be affected, and that by using

hot water an exactly opposite effect will be produced. This reaction can also be produced by cold air or ether vapour. One can be quite certain that where no reaction is produced there is no irritability of the vestibular apparatus of the ear syringed.

Where an erosion of the bony wall has produced a fistula into the labyrinth and the labyrinth is still irritable, you can produce nystagmus by increasing the pressure in the tympanic cavity by means of an air balloon connected with the ear by means of an olive and a rubber tube. This increased pressure will cause a movement of the cupula in just the same way as that produced by Ewald's experiments.

It is best to make the patient gaze steadily at you, and then on pressing the balloon the nystagmus will be observed; the direction is not constant but it is most often towards the ill side.

This reaction, the so-called "fistula reaction," is of great practical value in diagnosing a fistula into the labyrinth.

In all cases, before doing the turning or caloric reaction, careful observation has been made of any spontaneous nystagmus produced by simply looking to the extreme right or left. Any error from this in the case of the turning reaction is obviated by using the opaque spectacles into which the patient looks.

Any subjective symptoms such as vertigo, nausea or vomiting must be noted. These vary with the individual. The rule is that objects will move in the direction of the nystagmus and patients will tend to fall in the contrary direction. The quick movement of the nystagmus causes no optical impression, it is only the slow movement. If one lays the first finger on the side of the eye and moves the globe laterally, it will be seen that objects looked at apparently move in the opposite direction to the movement of the globe. Hence objects apparently move in the opposite direction to the slow movement of the nystagmus, *i. e.* in the direction of the quick movement.

In those cases in which one or both vestibular apparatuses were not functioning it was found that there was no disturbance of equilibrium, and that the patients could perform all Romberg's tests normally. Indeed, the semi-circular canals seem to have in man a very slight influence, if any at all, on the equilibrium in the normal state. It is probably different in animals.

Bárány has shown that the counter rolling movements of the eyes which occur when you bend your head to the side are probably partly dependent on the vestibular apparatus. By means of a very ingenious apparatus he has measured this movement and has shown that there is very little in the case of a deaf-mute with

destruction of the labyrinth, whereas in patients with vertiginous attacks there is a very marked movement.

Patients have also been tested in the usual way for conversation and whispered voice, also for Weber, Rinne and bone-conduction. For low tones C_1 and for high tones C_4 has been used.

The cases are all of a high degree of deafness in one or both ears, and in the cases of unilateral deafness, to demonstrate whether there was any perception of hearing by the bad ear, I have made use of an apparatus devised by Bárány. This consists of a hollow metal cone through which a stream of water is conducted by one fine tube and led off by another; by means of a third tube air is blown into the cone by a rubber balloon. The cone is covered by fine rubber to prevent the patient's ear getting wet, and is inserted into the patient's sound ear. By means of this instrument a very great noise is produced in the patient's ear, and with two of these, one in either ear, no sound at all can be heard. If, then, the patient hears with one of these in the good ear it is certain that he is hearing with the affected ear. This examination has been mentioned under the "Remarks" column under the term "Air and water syringing."

This instrument has been improved lately, the noise being made by clock-work enclosed in a small box. This is made by F. Reiner and Co., Vienna.

The galvanic reaction, not being of such practical importance, has not been taken, but this and a more complete description of the other methods can be found in Bárány's "Physiologie und Pathologie des Bogengang Apparates," Leipzig und Wien. Franz Deuticke, 1907.

To consider first generally the result of the examination of the seventy-four cases in the tables, we find the following figures with regard to the condition of the irritability of the vestibular apparatus:

Normal irritability or +.	Diminished irritability.		Very much diminished.		No irritability or -.	
	One side.	Both sides.	One side.	Both sides.	One side.	Both sides.
39 cases, or 52.7 per cent.	2 cases, or 2.7 per cent.	1 case, or 1.3 per cent.	5 cases, or 6.7 per cent.	2 cases, or 2.7 per cent.	21 cases, or 28.3 per cent.	4 cases, or 5.4 per cent.
39 cases, or 52.7 per cent.		35 cases, or 47.3 per cent. impaired or not functioning.				

This is undoubtedly a high percentage of cases with an impaired or not functioning vestibular apparatus, but in explanation of this I must state that of the 74 cases 36 have been very kindly supplied to me by Dr. Bárány from his private notes on cases extending over the last three years. These comprise most of the cases of tumour and trauma, and are marked B in the tables. The other 38 cases have been examined by myself during the past three months as they attended the clinic, and from these 38 I find that in 24, or 63·2 per cent., the vestibular apparatus was normal; in 14, or 36·8 per cent, the vestibular apparatus was impaired or not functioning. Even then 36·8 per cent. is probably a higher percentage than is generally supposed.

The cases, as far as possible, have been classified according to their aetiology, and we will now consider the groups more in detail.

I. (Cases 1 and 2.) Congenital deformity of the external ear. In both the vestibule was + (+ meaning here irritable to the caloric or turning reaction.)

In Case 1 a probe could be passed for about one and a half inches, and by employing one and a half balloons of cold water I was enabled to obtain a weak but definite caloric reaction.

Case 2 was operated on, and during the operation the prominence of the external semi-circular canal could be seen. Later the caloric reaction was tried and was found to be normal.

II. (Cases 3-5.) Occupation deafness.

Case 3 had been deaf eighteen years and the irritability of the vestibule on the deaf side was diminished.

Case 5 was combined with trauma, and in this case also the irritability of the vestibule was diminished on the one side.

III. (Case 6.) ? Smallpox. The vestibular apparatus was +.

IV. (Case 7.) ? Diphtheria. The irritability of the right vestibule was greater than of the left.

V. (Case 8.) ? Influenza and ? otitis externa. This case had very severe vertigo attacks with nystagmus to the ill side. A week after the onset he became perfectly deaf in the left ear, but still the irritability of the left vestibular apparatus remained normal.

VI. (Two cases, 9 and 60.) In which a rheumatic affection of the vestibular nerve was probable.

In Case 9 there was facial paralysis which healed within three weeks. The vestibular irritability was normal.

In Case 60 after a fortnight's observation the hearing was very much improved, although the attacks of vertigo were still strong.

VII. (Fifteen cases, 10-24.) Oto-sclerosis.

The diagnosis of pure oto-sclerosis has been made in cases with normal drums, free Eustachian tubes, negative Rinne and lengthened bone-conduction. A diagnosis of oto-sclerosis combined with lesion of the internal ear, where, with normal drums, free Eustachian tubes and negative Rinne, the bone-conduction has been normal or shortened.

In the first group there are six cases, in the second nine. Case 24 showed a very much diminished irritability of the left vestibule, but in this case there was shortened bone-conduction and the possibility of syphilis could not be excluded. In Case 20 also there was impaired irritability of the right vestibule.

In the remaining thirteen cases the irritability of the vestibule was +, and, indeed, it was noticeable that with the caloric reaction a strong nystagmus was very quickly produced, and was usually accompanied by strong vertigo, nausea or even vomiting. Seven cases (10, 14, 19, 20, 21, 22, 24) suffered from attacks of vertigo.

VIII. (Ten cases, 25-33 and 70.) Trauma.

In four cases the vestibule irritability was +.

In two cases very much diminished on one side; in two cases was - on the one side and impaired on the other; in one case was - on the one side and normal on the other. Case 31 has been commented on previously.

IX. (Ten cases, 34-43.) Brain tumour.

In all these without exception there was negative irritability of the vestibule on the diseased side. The spontaneous nystagmus is interesting in these cases. In six it was stronger to the side of the tumour, in one it was stronger to the opposite side, and in three it was equal both sides. All suffered from attacks of vertigo.

X. (Three cases, 44-46.) Arterio-sclerosis. In two cases the vestibular reaction was normal, in one case it was negative on the one side. All the cases suffered from attacks of vertigo.

XI. (Five cases, 47-51.) Acquired syphilis.

In three of these cases the vestibular irritability was normal. In Case 47 one year ago with conversation voice heard at 6 metres there was practically no vestibular irritation. Now the irritability to caloric irritation is returning and more nearly approaches the normal.

In Case 49 with negative irritability on the one side there was luetic meningitis of the base.

XII. (Seven cases, 52-58.) Congenital syphilis. In all these

cases, without exception, there was diminution or absence of the vestibular irritability. In three cases there was negative irritability on both sides; in one case (58) there was negative irritability on the one side and very much diminished on the other. In two cases there was much diminished irritability on both sides. In one case there was negative irritability on the one side and probably normal on the other, but this case (54) was complicated by strong ocular nystagmus which made the examination difficult. In none of the cases was there any discomfort or vertigo produced by the syringing with cold water, nor was there any disturbance of equilibrium. The results in these cases of congenital syphilis is important and interesting. That there was such a constant obliteration of the labyrinth was up till now not known.

XIII. (One case, 61.) The diagnosis of chronic adhesive process with lesion of the internal ear was made. In this case the vestibular irritability was +.

XIV. (Fourteen cases, 61-69, 71-75.) Cases with the character of a lesion of the internal ear without discoverable cause. Of these cases :

9	had the vestibular irritability normal.
3	„ „ „ negative on one side.
1	„ „ „ negative both sides.

ANTRAL DISEASE IN RELATION TO SPECIAL AND GENERAL SURGERY.¹

BY HERBERT TILLEY, M.D.LOND., F.R.C.S.ENG.,
Surgeon, Ear and Throat Department, University College Hospital.

THE diseases of the maxillary antrum appeal to the general as well as the special surgeon, and the latter comprise the rhinologist or surgeon with special knowledge of nasal diseases, and the dental surgeon whose studies have been focussed on pathological conditions of the teeth. Speaking generally, it may be said that the general surgeon will be more familiar with those diseases which cause obvious external swelling or deformity of the upper jaw or of the adjacent soft parts, and so he will be consulted for large alveolar abscesses, dental cysts, malignant disease of the antrum, and necrosis of the upper jaw. Since these affections are

¹ Read in the Section of Dental Surgery of the British Medical Association, by kind permission of the Editors.

also frequently seen by the rhinologist and dental surgeon, we may as well discuss them at once.

Alveolar Abscess.—When an abscess forms at the root of one of the incisor teeth the swelling may appear in the floor of the nose, just within or beyond the vestibule, and cause nasal obstruction of a marked degree. When the canine tooth is affected the tumefaction may appear externally at the side of the nose below the nasal bone, and may seem at first sight to have little to do with a diseased tooth. If such abscesses become chronic, cholesterol crystals are often found in their contents. Treatment must be directed to removal of the diseased tooth and opening the alveolar abscess.

Dental Cysts.—These, by their expansion, often cause considerable external deformity, and may so encroach upon the antral cavity that the sinus is almost obliterated. Pain, as a rule, is slight or absent, the swelling over the anterior antral wall within the mouth frequently presents the so-called “egg-shell crackling” when pressed upon, the hard palate is never pressed downwards, and if the transillumination test be applied, the affected antrum is only slightly less translucent than the normal one, or at any rate it is not quite opaque. To be successful treatment must be radical, for nothing is more wearisome to surgeon and patient than the constant packing of the cyst cavity after it has been merely opened from the mouth. The most effectual, speedy, and certain treatment is to reflect the mucous membrane from the buccal aspect of the cyst wall, freely open the cyst, remove all its thin, bony wall, especially that portion which projects into, and often almost entirely obliterates the true antral cavity, then remove the inner antral wall together with the anterior half of the inferior turbinal, so that a large permanent opening into the nasal cavity is provided. Finally, the bucco-antral incision is sutured with a couple of horse-hair stitches, and immediate union of the wound will take place. Practically there is no after-treatment beyond the use of a warm alkaline nasal douche for two or three weeks.

Malignant Disease of the Antrum.—Sarcoma and epithelioma are the commonest forms of malignant disease which affect the antrum. Pain of an intense and boring character is often an early symptom in epithelioma. With increase of the growth there may be distension of the anterior antral wall, producing swelling of the cheek, depression of the hard palate, nasal obstruction and bleeding from the nose. Epiphora is a not uncommon symptom, and is due to the invasion of the tear duct by the growth. Trans-

illumination reveals marked opacity of the antrum, and exploration of the antrum through the inferior meatus shows no sign of pus, but is often followed by the flow of a few drops of blood through the cannula. The only efficient treatment is a free excision of the upper jaw, and the operation should be performed directly the diagnosis has been made. Care must be taken not to mistake a large cyst for malignant disease of the antrum, and the following points will enable a diagnosis to be made:

Cyst.

Pain slight or absent.

Transillumination more or less clear.

Fluid contents on exploration.

Malignant Disease.

Severe pain of a neuralgic character.

Quite opaque.

No discharge, or only a few drops of blood.

Necrosis of the Upper Jaw involving the Antrum.—This is usually the result of tertiary syphilis. There may be slight swelling or oedema of the cheek, with obliteration of the folds between the ala nasi and the cheek. Frequently there is a foul discharge from the corresponding nostril, and careful intra-nasal examination may enable the surgeon to detect sequestra on the outer wall of the nasal cavity. The diagnosis will depend on the above signs, together with a history of syphilis and the presence of luetic lesions in other parts of the body. The treatment must be constitutional as well as local, and, with regard to the latter, general narcosis may be necessary to remove loose sequestra inaccessible by way of the nasal passages.

ANTRAL SUPPURATION.

We may now pass to the acute and chronic inflammatory lesions of the antrum, which are of special interest to the rhinologist and dental surgeon, and let me say at once that I propose to discuss antral suppuration only as we find it when limited to that sinus alone, for I scarcely think it would be fitting if, in this section, we included in one purview those cases which come before the nasal surgeon in which the antral and other sinuses are simultaneously involved.

Before discussing the causative factors of antral inflammation let me point out one or two anatomical features of the antrum which may be of surgical importance, and which should influence us in the treatment which we adopt for the relief of inflammatory

lesions. The exigencies of time compel me to assume that you are all familiar with the normal anatomy and development of the maxillary sinns.

(1) The antral cavities often vary much in size in the same individual, and I can show you a beautiful stereoscopic picture which illustrates this point.

(2) When there is a tendency for the palate to be high and the face is of the narrow type, then the alveolar process will be thick and the antrum relatively small—a type more common in women than in men, in whom the converse condition of things is more generally true. It will be obvious how difficult it will be to efficiently drain the antrum by way of the alveolar route in the first type of case.

(3) The inner antral wall is of interest in connection with the more radical operative measures. Regarded from the antral side, this wall is divided into two parts by the line of attachment of the inferior turbinal; the anterior and lower triangle is bony, and corresponds to the inferior meatus; the upper and posterior is mainly membranous, and forms a portion of the middle meatus, and in it is situated the natural ostium of the antrum.

(4) The actual cavity of the antrum is often very irregular, and may be more or less divided up by bony septa. Irregular depressions are frequently present over the roots of the teeth which approximate to the sinus cavity, and, in addition, there are often to be met with the pre-lacrymal and palatine recesses, illustrations of which I am able to show you. Your attention is drawn to these points because in these pockets infection may long be harboured, and only some form of radical procedure can be expected to deal successfully with them.

(5) Finally, certain of the lower anterior ethmoidal cells may extend externally into the inner, posterior, and superior regions of the roof of the antrum. These are known as maxillo-ethmoidal cells, and may be the cause of a chronic antral suppuration, and can only be dealt with by some form of radical operation.

It is now a well-established fact that infection of the antrum may arise by way of the nasal cavities or through disease of certain teeth. Acute antral suppuration by the intra-nasal route is most commonly due to infection by the pathogenic organisms of certain of the acute specific diseases. Of these influenza has been the most active, although the worst case of bilateral suppuration of all the nasal accessory sinuses which I have seen followed enteric fever, and one of the most interesting was met with in a lad, aged

nine, where acute frontal sinus suppuration, necessitating external operation, complicated scarlet fever. Many cases recover spontaneously, and failure to achieve the desired end is often due to coincident pathological conditions within the nose, whereby free and spontaneous drainage is hindered. It is not an infrequent experience to meet with bilateral acute antral suppuration in which one side recovers spontaneously, but owing to the presence of a large septal spur or deviation on the other side drainage has been impeded, and the acute has passed into the chronic stage of suppuration.

A second common cause of antral suppuration is infection from a diseased tooth, an apical abscess, or suppurative periodontitis. Less frequent ætiological factors are traumatism, dental as well as intra-nasal, and amongst these we cannot overlook unskilful extractions, as well as the careless use of the galvanic cauterly within the nose.

Chronic suppuration within the antrum is usually the sequela of an acute attack of inflammation which has failed to undergo resolution. Such failure may be due to the virulence of the initial inflammation, to defective drainage caused by pathological intra-nasal conditions, or to the continuance of the initial cause of the inflammation—for example, an apical dental abscess which continues to supply infective material to the inside of the antrum. And finally, a debilitated state of the patient's general health will be a strong predisposing factor in the formation and continuance of chronic suppuration in one or more of the sinuses.

As regards the bacteriology of the condition, time will not allow me to go into this interesting matter, and those who desire information on the subject I would refer to the work carried out by Drs. Logan Turner and Lewis¹ who, amongst other conclusions, have shown "that the pus obtained from some cases of antral suppuration may contain organisms similar to those occurring in the buccal cavity; that occasionally bacilli distinctive of dental caries may be isolated from the pus of an antral abscess; that in the cases of chronic suppuration streptococci were found in 80 per cent., whilst in the more recent cases they occurred in 60 per cent.; that in recent cases virulent organisms are met with twice as often as in cases of chronic suppuration; that clinical evidence supports the view that the antrum is more frequently infected by way of the nasal cavity, and that this opinion is corroborated by bacteriological investigation."

¹ *Edin. Med. Journ.*, 1905.

ACUTE ANTRAL SUPPURATION.

Symptoms.—When the inflammation is the result of dental infection the earlier symptoms are usually located around the tooth, and these are so well known to you that I need not waste time in describing them. Their relief is often coincident with a foul nasal discharge, which intra-nasal examination would probably reveal as it issued from the middle meatus between the lower border of the middle and the upper border of the inferior turbinal.

Prognosis.—This will be particularly good if the offending tooth be removed early and suitable treatment be instituted.

Treatment.—When antral suppuration is obviously of dental origin, the offending tooth should be removed and free communication with the antrum made through the alveolus by means of a suitable perforator. The sinus should be gently irrigated with a warm sterile normal saline solution, boracic lotion, weak Condy's fluid, or with any one of the numerous mild fragrant antiseptics which are now on the market. The alveolar opening should be kept open by a suitable plug, and irrigation practised twice or thrice daily at first, and at increasing intervals as the amount of pus observed in the returning fluid becomes less. When, after an interval of five to seven days, no pus is seen in the basin after irrigation, the plug may be finally removed overnight, and by the morning the alveolar perforation will be nearly closed. When antral suppuration is of nasal origin the prognosis is less favourable, and the treatment may be less simple, for reasons which will be discussed immediately. Under these circumstances we must endeavour:

(1) To treat the primary constitutional disease by rest in bed, suitable food, and such internal medication as the nature of the general infection may indicate.

(2) To allay the local discomfort caused by the complicating acute sinusitis. The neuralgic pain will frequently be relieved by 10-grain doses of aspirin every four or six hours, and hot fomentations to the cheek may assist to the same end.

(3) But locally our chief efforts must be directed to promoting the free and spontaneous discharge of pus from the antrum by way of the natural ostium, and these ends may be attained:

(a) By directing the patient to lie in bed with the diseased antrum uppermost.

(b) The application of cocaine and adrenalin solutions to the

regions around the middle meatus. This may be done every four or six hours.

(c) Scarification of these regions is recommended by Lack, and my experience confirms the efficacy of the method.

(d) In the intervals of such treatment inhalation of mentholised steam will have a similar effect in inducing contraction of the swollen intra-nasal mucosa.

If these means fail, the antrum should be punctured through its inner wall in the inferior meatus and irrigated with warm, mild antiseptic lotions. If this be done daily or on alternate days for five or six times, resolution will generally take place. Should suppuration continue, then a larger intra-nasal opening must be made, and this will practically always succeed in curing acute antral suppuration for which milder measures have failed. It will thus be seen that the clinical course, prognosis, and treatment of acute suppuration of dental origin are more favourable than when the sinus is infected by way of the nose. In the one case we have a small local source of infection, the greater part of the mucous membrane of the antrum and its corresponding nasal cavity being practically healthy; in the other (intra-nasal infection) the whole mucous membrane of the nose and the antrum seems to be intimately infected and inflamed, while the resisting power of the patient is frequently reduced to a low point by the general infection of the system.

CHRONIC ANTRAL SUPPURATION.

We have already said that chronic antral suppuration is the sequel of an acute dental or intra-nasal infection, which for some reason or reasons has not undergone resolution.

Symptoms.—Whatever be the original cause of the trouble, the patient will usually complain of one or more of the following symptoms: (a) An unpleasant odour in the nose, which is often most marked on lowering the head. (b) Headache, often over the corresponding eye, and the aching may have a marked periodicity—for example, it is peculiarly apt to occur in the morning, and pass off about midday—and this periodicity has often led to its being mistaken for a malarial symptom, especially when the patient has resided in regions where the disease is endemic. (c) More or less nasal obstruction, which will be caused by polypi or abnormal swelling and congestion of the nasal mucous membrane. Cough, liability to colds in the head, anaemia, indigestion, anorexia, and

general debility are often complained of, and in the case of the last four symptoms they may be due to the constant swallowing of the foul discharge. Not infrequently the absorption of certain of the toxins into the system exerts a curious effect on the nervous system, so that the patient becomes depressed, apathetic, and incapable of any prolonged mental exertion.

Diagnosis.—In a suspected case of chronic antral suppuration our first duty will be to examine the teeth on the same side, and also the corresponding nasal cavity. I need scarcely warn dental surgeons that a tooth which does not ache is not necessarily and *de facto* guileless; and furthermore, that the secret of an antral suppuration often is more obvious underneath than on the surface of a gold crown. Intra-nasal examination will often reveal pus in the middle meatus, but, if this sign be absent, it may sometimes be induced by asking the patient to turn the suspected cheek towards the ceiling for a few moments, when the discharge may be caused to flow into the middle meatus. Transillumination is a very valuable diagnostic help, if used with discretion and if taken in conjunction with the other symptoms exhibited by the patient. The 10-volt. lamp is placed in the patient's mouth, his lips tightly closed, and the room darkened, or the surgeon and patient's head enveloped in a dark cloth. If the antrum be healthy, a crescent of light is seen in the infra-orbital region; if the antrum be inflamed, the region referred to will be dark and in marked contrast with the healthy side. It should emphatically be stated that a dark antrum does not necessarily mean antral suppuration, but, on the other hand, good transillumination may be taken to exclude that condition. Before applying the test you must remove any denture from the upper jaw, or the antrum may be quite opaque. I once saw an antrum opened because this little point in diagnosis had been neglected.

Exploration Test.—This is a final and certain test when other means fail, as they frequently do. A fine trocar and cannula are passed through the inner wall of the antrum underneath the inferior turbinal. Some warm normal saline solution is then injected into the antrum and returns from the nose; the presence of pus in the returning fluid can thus be determined with absolute certainty. The little operation is almost painless, and its evidence is absolutely reliable. Some surgeons make the puncture in the middle meatal region through the membranous part of the inner antral wall, and claim that it is easier and less painful than beneath the inferior turbinal. (The instrument and method of

using it were demonstrated.) I have frequently found that perforation and irrigation of the antrum have been immediately followed by pain in a certain diseased tooth, and this affords a valuable hint as to which of two teeth possibly was the real offender.

Prognosis.—As in the acute inflammations, chronic suppuration of dental origin is of better prognosis than when due to intra-nasal infection, and for the reasons already given.

Treatment.—In discussing the treatment of a chronic antral empyema, we must remember that we are dealing with an abscess of a bony cavity the walls of which cannot contract, and that if we are to check the suppuration and promote the return of the mucous membrane to a natural condition we must provide for free, unhindered, spontaneous drainage. These ends may be secured by drainage through the alveolus, from the canine fossa, or by an opening from the antrum into the nose. The principles which should guide us in the selection of the method of operation is the main object of my theme to-day, and it is upon the method of treatment that discussion will probably centre, and differences in opinion based upon experience will be as numerous as they are valuable.

Alveolar Drainage.—If the clinical history seems to show that the antral suppuration was of dental origin, and examination has proved that the second bicuspid or the first or second molar teeth are diseased, then it may reasonably be argued that such a tooth or teeth should be removed, a free communication made with the antrum, a plug or tube inserted, and frequent irrigation practised until the discharge lessens or completely ceases. This method will undoubtedly be successful in a certain number of cases, and especially in those where the antral suppuration has been maintained by an apical abscess or suppurative periodontitis. In such instances the greater part of the antral mucous membrane is healthy, the infection is more or less local, and only calls for removal of the infecting focus.

Such cases as these frequently and naturally come under treatment by the dental surgeon, and the result is often so quickly successful that he is enamoured of the alveolar route, and considers it more universally applicable than would be the case if he had an equal experience of empyemata caused by other ætiological factors. For example, a fetid, purulent nasal discharge frequently leads the patient to consult a rhinologist, and it may be the work of a few moments to determine the presence of an antral abscess. He tells us that the symptoms date from a severe cold, or influenza,

possibly three or four months previously. Examination of the teeth may reveal extensive caries of the bicuspid or molars—possibly one of these may be “dead.” The tooth is removed, the alveolus perforated, a plug inserted, and irrigation practised. In spite of change of lotion, change of air, and possibly change of doctor, the suppuration continues, although its fœtor may be destroyed, and its amount may be diminished; still, the fact remains, the daily irrigation has to be continued, because its cessation means a return of the unpleasant symptoms. Why is this so? Why is the treatment which was so conspicuous by success in the first case a failure in the second?

Possibly the answer has already been given—namely, that in those cases due to intra-nasal infection there is a more general and intimate inflammation of the antral mucous membrane, that the dental disease is scarcely more than a coincidence, and that the alveolar puncture, even though it might admit the passage of a slate pencil, does not provide for free, unhindered, spontaneous drainage; and, furthermore, it provides an additional source of infection by way of the mouth. In this consideration the nature and virulence of the infecting organisms may play a conspicuous part in promoting chronicity, and those who have made a special study of the bacteriology of antral discharges may be able to throw some light on this point.

In my own practice, as well as in those of my colleagues and of dental surgeons, I have seen a large number of failures with alveolar drainage. The causes of some of these have been very obvious: For example, (1) drainage-tubes which projected half an inch above the level of the antral floor, and therefore did not drain until the antrum was already half filled with pus; (2) drainage-tubes of narrow calibre, which do not drain at all, because mucus and pus almost immediately coagulate and obstruct their lumen when they are inserted; (3) tubes which are too short, and therefore the upper part of the alveolar tract becomes closed by granulation tissue, which has to be broken down every time irrigation is practised; (4) tubes which have a free opening into the mouth, and therefore may admit food and other infective elements, which act deleteriously on the antrum.

I have often admired the mechanical skill and ingenuity expended on antral plugs and tubes and regretted that the result obtained by their use was not equally worthy of congratulation, and the consequence has been that in my own practice, when I utilise the alveolar route, which is very seldom, I insert a small

vulcanite plug with a milled shank, which is easily retained. Truly this does not provide for drainage from the most dependent position of the antrum, but it provides and keeps open a passage which can be used for irrigation as often as necessary, and in the intervals access from the mouth to the sinus is closed. We may say, then, of alveolar drainage that it will probably be successful in all acute cases of dental origin and in a moderate proportion of chronic cases due to the same aetiological factor. A plug is probably more satisfactory than a tube, because, unless the calibre of the latter is comparatively large, drainage does not take place, and the antral cavity may be contaminated by infection from the mouth.

Drainage through the Canine Fossa.—By this method a large opening is made in the canine fossa, the soft parts and periosteum having been first reflected from the bone. Through the opening the mucous membrane may be everted, and the bucco-antral opening is kept open by rubber plugs, wicks of gauze, etc. One only mentions this operation to condemn it, and anyone who has ever employed it will have vivid recollections of the difficulties involved in keeping the opening patent, of the pain caused by so-called self-retaining plugs, which usually manage to find entry into and hide themselves in the antrum, of the difficulties of irrigation, and, above all, of the failure of such a method to cure.

Intra-nasal Drainage.—The advantages of treating a chronic antral suppuration by this route are numerous, and extended experience has proved beyond cavil or dispute that this method is the best for all cases where the primary infection has been by way of the nose, and for those instances of chronic empyemata of undoubted dental origin which have failed to get well when drained by the alveolar route, or where there are reasons for not adopting that method.

Intra-nasal drainage may be established by two methods:

(1) *The Caldwell-Luc method*, in which a large opening is first made in the canine fossa, and then the greater part of the inner or naso-antral wall is removed, including the anterior half of the inferior turbinal. When any diseased portions of antral mucous membrane have been removed and bleeding has ceased, the bucco-antral wound is sutured, and usually heals by immediate union. No packing should be inserted into the sinus, and the after-treatment consists of intra-nasal irrigation of two to four weeks by way of the nose. Few operations give such excellent, speedy, and permanent results, but in order to ensure success we must—

(a) Make a large opening into the nose—and I am in the habit of removing practically all the naso-antral wall, because small openings have a great tendency to contract.

(b) Not curette away the healthy mucous membrane of the sinus. It is surprising how swollen, cedematous, and apparently degenerate mucous membrane will recover itself if free, unhindered, spontaneous intra-nasal drainage be provided.

(2) *The Simple Intra-nasal Route.*—In this method the anterior half of the inferior turbinal is removed and then, by means of specially-constructed burrs, trocars, or forceps, the inner antral wall, in whole or in part, is removed, until an opening is made which will easily admit the tip of the little finger. This method is simpler than the Caldwell-Luc operation, and has recently been much advocated. During the past twelve months I have frequently employed it, and am very satisfied with the results which it gives in selected cases. It is especially indicated in chronic cases of dental origin, when the anterior ethmoidal region shows no signs of infection, or when the middle meatal region is free from polypus formation. On a few occasions I have made use of the operation for acute empyema of nasal origin, in which alveolar puncture has not relieved pain or diminished the discharge. Its advantages over the Caldwell-Luc operation are :

(a) It involves far less traumatism of the parts, and may therefore be the chosen operation for the old, weak, or infirm.

(b) It is a much simpler operation, and may be thoroughly performed in about five minutes.

Its great disadvantage is that the surgeon cannot inspect the diseased cavity upon which he is operating, and must rely on the evidence afforded by the tip of his little finger inserted through the nostril and inner antral wall. When in addition to antral suppuration polypi are present in the middle meatus, I think it wiser to carry out the more radical Caldwell-Luc operation, because more detailed treatment of the antral mucous membrane may be called for, and ready access may be obtained to the ethmoidal or maxillo-ethmoidal cells.

To sum up, we may state :

(1) The alveolar route is especially suitable for acute empyemata of dental origin; that it will cure a certain number of chronic cases due to the same cause, and the likelihood of success is greater the earlier the method is adopted. The method is not suited for cases of intra-nasal origin. A solid plug will be more suitable than a hollow one.

(2) Intra-nasal drainage by one or other route is a more satisfactory method for dealing with chronic antral abscess—

(a) Because free drainage into the nose is established, and this is continuous and permanent, and it involves no trouble to the patient beyond irrigation with some mild aseptic for a few weeks after the operation. Contamination from the mouth is also prevented, and the sacrifice of a useful, though possibly not a sound, tooth, will not be called for.

(b) From the patient's point of view, there are no painful after-dressings, and neuralgic pain, so frequent after alveolar puncture (so that the patient often dreads the use of the syringe), is almost unknown with the more radical procedures.

(c) Convalescence from the more radical Caldwell-Luc operation is rapid, the patient is rarely detained indoors beyond five to seven days. The simple intra-nasal operation is often done in the out-patient department of hospitals, and the patient goes home a few hours later.

With regard to the treatment of chronic antral empyemata by means of vaccines, or by treatment based upon the opsonic index, I have not had a large experience, and the few patients who were thus treated did not give satisfactory results, although the treatment was carried out by experts.

It seemed to me that their chief difficulty laid in the fact that a variety of organisms were present in each case.

It would be interesting to know from those who have had much experience of this form of treatment whether it is satisfactory as a practical method, the length of time usually required, and finally, whether such a treatment might be useful in cases which prove obstinate by surgical methods already described.

It will thus be obvious to you that apart from acute cases of obviously dental origin, where alveolar drainage may be adopted with every hope of success, I am pleading to-day for the more frequent adoption of the intra-nasal drainage, a method which has more advantages than, and none of the drawbacks of, the alveolar method, while its employment is in complete accord with those general principles of surgery which should guide us whenever we endeavour to cure chronic suppuration of a bony-walled cavity.

**SOME RECENT RESEARCHES ON THE ANATOMICAL AND
PATHOLOGICAL CONDITIONS OF THE MAXILLARY SINUS
IN RELATION TO THE TEETH.**

*(Report of Paper read in the Odontological Section of the British
Medical Association, 1908.¹)*

BY A. S. UNDERWOOD, M.R.C.S.ENG., L.D.S.,

Professor of Dental Surgery, King's College, London; Examiner in Dental
Surgery, Royal College of Surgeons.

MR. ARTHUR S. UNDERWOOD explained the results of some research work on the relations of the teeth to the antrum of Highmore. The investigation had been carried on at the Royal College of Surgeons Museum by the kind permission of Professor Arthur Keith. About 150 skulls of all ages and both sexes had been transilluminated, and the interior of the sinus explored, where possible, with fine wires. In addition to this 33 skulls had been obtained which had been sawn through below the orbit, exposing the floor of the antrum and that of the inferior meatus. The present results were preliminary to a more extended observation, which would be published later.

It appeared so far to be fairly obvious that the size and position of the sinus was modified, and perhaps altogether governed, by eruption, development, and subsequent loss of the teeth to an extent not hitherto suspected. In all cases the cavity extended well behind the last of the standing back teeth.

Where all the cheek teeth were in position the cavity extended about $\frac{1}{2}$ in. to $\frac{1}{4}$ in. behind the third molar, which tooth is invariably in relation to its floor; the second and first molars were almost always in relation to the cavity, the second premolar generally, the first premolar fairly often, the canine rarely.

In normal cases the floor or the cavity was about $\frac{1}{2}$ in. deeper than the floor of the inferior meatus, and the deepest part was between the roots of the second molar tooth, the palatine roots lying imbedded in the palatine wall and the labial roots in the labial wall of the sinus. This was shown in the accompanying slide of vertical section of a normal adult male skull (Fig. 1). The floor sloped slightly upwards in front and behind. During eruption of the molar the floor of the sinus was raised in a bony dome over the

¹ By kind permission of the Editors.

PLATE I.



FIG. 1.—Vertical section showing relation of molar roots to antrum, and depth of antral floor compared with that of inferior meatus.



FIG. 2. Shows lump on floor of antrum, caused by erupting wisdom.



FIG. 3.—Same specimen showing erupting wisdom.

TO ILLUSTRATE MR. A. S. UNDERWOOD'S PAPER ON "SOME RECENT RESEARCHES ON THE ANATOMICAL AND PATHOLOGICAL CONDITIONS OF THE MAXILLARY SINUS IN RELATION TO THE TEETH."

Adlard & Son, Imprs.

PLATE II.



FIG. 4.—Shows septum in left antrum.

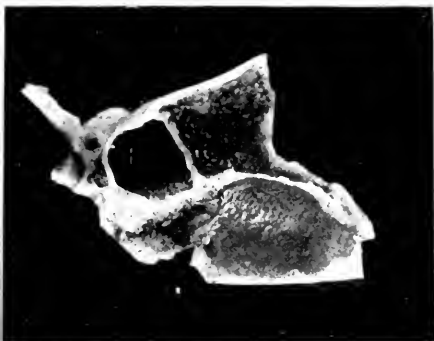


FIG. 5.—Shows septum in left antrum.



FIG. 6.—Shows raised and thickened floor of antrum resulting from a large chronic abscess on roots of first and second molar.

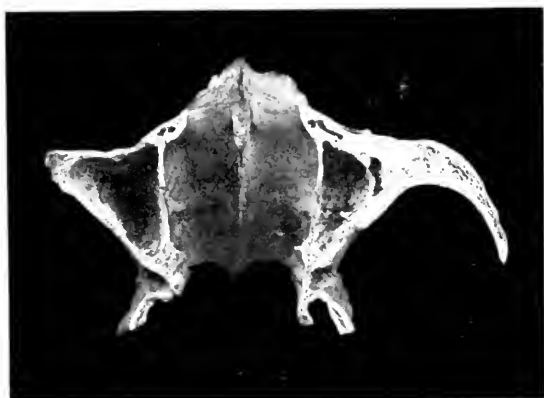


FIG. 7. Shows reduction of capacity of right antrum resulting from chronic disease.

TO ILLUSTRATE MR. A. S. UNDERWOOD'S PAPER ON "SOME RECENT RESEARCHES ON THE ANATOMICAL AND PATHOLOGICAL CONDITIONS OF THE MAXILLARY SINUS IN RELATION TO THE TEETH."

crypt; this dome was absorbed and became a concave basin after eruption.

After eruption, the roots of premolars were often visible as bony eminences on the floor, and, in some cases, molar roots also. They rarely penetrated the bone. (Figs. 2 and 3 show an erupting wisdom and the raised floor of the antrum.)

Where all the teeth in relation to the antrum had been lost, the floor of the sinus rose to the level or even above that of the meatus. Where a few had been lost, the elevation of the floor was confined to that area. Thus, in a case where one side only was edentulous that antrum was shallow and small, the other side being normal.

In nineteen out of thirty-three sawn maxillæ there were septa vertically rising about $\frac{1}{4}$ in. to $\frac{1}{2}$ in. above the floor (Figs. 4 and 5), and dividing the deep part of the sinus into two or more compartments; fourteen of these cases were on the left side and five on the right. The septa were between the teeth, shutting off, as it were, the part above the tooth (generally between the second and third molars).

The left sinus was markedly smaller than the right in eight cases. The right never smaller than the left. There were only three cases with undoubted signs of long-standing chronic abscess over the roots of cheek teeth, but in these cases instead of the antrum being opened by the abscess, bone had been heaped up over the abscess sac; so that in the case shown in the figure, though the right antrum was normal, on the left side, where the abscess had burrowed right through from the lips to the palate and high up towards the antrum (Figs. 6 and 7), protective bone had been heaped up, so that the floor of the sinus was very thick and raised far above the level of the meatus floor, and the whole cavity reduced to about one fifth of its normal capacity. In acute cases this would, of course, not happen, and long-standing untreated cases were fortunately rare.

The conclusions to be drawn from this preliminary research were that the form, position, and capacity of the sinus were largely modified by the presence or absence and general condition of the teeth, though these organs do not necessarily play a large part in the causation of antral disease, and that it should be possible for a student of the subject to be of great assistance to the operating surgeon by mapping out, from an examination of the teeth, the size and position of the cavity. If the septa prove as common as the writer suspected, they would be a serious obstacle to the wash-

ing out of the cavity as generally practised. The speaker had never seen a transverse septum or one completely dividing the cavity.

SUPPLEMENTARY REMARKS BY THE AUTHOR.

In order to make the effect on antral operations of these preliminary researches more obvious, I have obtained the permission of the Editor to supplement them with a further statement in tabulated form, which I now subjoin.

(1) *The Effect of the Septa.*—These septa, which appear to be very frequently present, divide the floor of the sinus into a series of pockets. Very commonly one of these pockets, which in shape resemble a pudding-basin, exists posterior to the last or third molar roots, in size about a quarter of an inch in diameter and depth. No amount of lavage would with any certainty clear this cavity, and a residuum of fluid would always remain undrainable by any suggested method of drainage with which I am acquainted.

Another very common septum divides the region occupied by the third molar from those teeth in front of it. This septum is often half an inch in height. This would create a difficulty in any attempt at lavage through any opening in front of the third molar roots.

A third very common pocket is formed by a small septum between the second premolar and the first molar. There is also quite frequently a small septum creating a separate bony pocket in the anterior quarter inch of the sinus.

These septa may easily explain recurrence of septic symptoms after apparently complete lavage, after operation by the Caldwell-Luc and other methods.

(2) *The Canine Fossa is often in front of the Sinus.*—In about 70 per cent. of a fairly extended series of skulls taken from the post-mortem theatre and the dissecting room, the canine fossa was either quite in front of the anterior limits of the cavity or only just accessible to it.

(3) *Relation of the Roots of Teeth to the Sinus.*—The third molar if existing is always in relation to the cavity. The second molar is normally always in relation to the most dependent part of the floor of the cavity. In the case of healthy molars the roots are in the *walls*, not the *floor* of the cavity, and the floor descends in cup-like form between the palatine and buccal roots (see Fig. 1).

(4) *Chronic disease of the roots of teeth* tends to thicken the floor of the sinns and renders the cavity *less*, not *more* accessible through an alveolar opening.

(5) *The early loss of cheek teeth* raises the floor of and diminishes the capacity of the sinns.

(6) These conditions can be diagnosed during life by a surgeon who has been a careful student of the dental aspect of the case. That is, he can with tolerable accuracy pronounce upon (a) the capacity of a given antrum; (b) the state of its floor as regards level and to a limited extent the presence of septa, from an examination of the month in the living patient. It appears to me that such information must prove valuable to the operating surgeon in assisting him to form a more exact forecast of the dimensions and general conditions of the cavity on which he proposes to operate.

BRITISH MEDICAL ASSOCIATION.

Meeting at Sheffield, July, 1908.

SECTION OF DENTAL SURGERY.

President, FRANK HARRISON, M.R.C.S.ENG., L.D.S.EDIN.

DISCUSSION ON ANTRAL DISEASE IN RELATION TO SPECIAL AND GENERAL SURGERY.

Dr. HERBERT TILLEY opened the discussion with a paper on "Diseases of the Maxillary Antrum from the Point of View of the General Surgeon, the Rhinologist, and the Dental Surgeon" (*vide* p. 607).

Mr. A. S. UNDERWOOD continued with a paper on "Some Recent Researches on the Anatomical and Pathological Conditions of the Maxillary Sinus in Relation to the Teeth" (*vide* p. 620).

The discussion was continued by Professor Urban Pritchard and others.

Dr. URBAN PRITCHARD (London) said: Dr. Tilley has in his paper gone so thoroughly into the treatment of these cases of antral suppuration that there is very little left to be said; but I should like to say that I quite agree with him that the radical operation, opening right through from canine fossa to the inferior nasal meatus, should be

adopted in all bad cases. I also agree with his warning not to remove or seriously injure the mucous membrane by over-curetting—the soft polypi, etc., are best wiped away, as it were, rather than curetted. Mr. Underwood's researches are very instructive. The septa, if they cut off a separate cavity, may have to be reckoned with when operating from the alveolar process. In regard to the smallest antral tubes shown by Dr. Tilley, I feel sure he will agree with me that they should always be avoided.

Mr. F. J. BENNETT (London) quoted the dictum of John Hunter, that the size and shape of the antrum of Highmore depended on the position of the fangs of the teeth, the branching of the molar fangs bounding the walls to some extent. With regard to the presence of septa in the antrum, the speaker had pointed out on a previous occasion the close dependence of the septa on the original posterior wall of the maxilla. As the antrum increased in size in a backward direction, due to the lengthening of the jaw, due in its turn to the eruption of the posterior molar teeth, that which was the posterior wall became part of the antral cavity, and traces of this posterior wall still persisted through life as the antral septa.

Mr. K. W. GOADBY (London) said: It occurred to me that a few remarks relating to the bacteria found in cases of chronic antrum suppuration might not be entirely foreign to the present discussion. I have therefore compiled the accompanying tabular statement, from which it will be seen that the infecting organisms differ considerably, and that in many cases mixed infection has taken place. The organisms noted were in all cases identified by cultural methods, and in cases Nos. 3, 5, 6, 7, 12 the *Staphylococcus aureus* isolated were tested on rabbits—0.5 c.cm. of an emulsion of a twenty-four hours' growth on agar in 5 c.cm. of broth produced death when injected intra-peritoneally. The saccharomyces isolated were also tested and in two instances produced death—Nos. 5 and 7. On the death of the animal, large masses of growth in the lungs and kidneys were found simulating sarcoma to the naked eye. This organism I have found in cases of pyorrhœa alveolaris on several occasions, and inoculation into animals has proved pathogenic. The other organism to which I desire to draw special attention is the *Bacillus fusiformis aërobicus*, apparently an aërobic variety of the one first noted by Vincent as occurring in a special form of angina, and also frequently found in alveolar pyorrhœa. The characters of the organism are as follows: It stains by the ordinary aniline dyes, but not by Gram's method. On agar the growth is scanty, and development takes place best upon serum agar. Subcutaneous inoculation into guinea-pigs is followed by a local swelling at the point of inoculation, which persists for a week or more, gradually resolving; the swelling, if incised, is found to contain pus, in which the organisms may be found during the first few days. Two points I desire particularly to emphasise: first, that antral suppuration occurs by infection from the alveolus without the intervention of carious or abscessed teeth. In alveolar pyorrhœa masses of granulation tissue seen on extracted teeth show on section a process of rarefying osteitis spreading into the bone, often with small masses of bone buried in the tissue, while the tissue farthest removed from the advancing inflammation shows fibrous sclerosis. In cases Nos. 5, 7, and 11 this alveolar infection was present, the removal of a suspected tooth showed no suppuration due to dental cause, while in one case—No. 7—a probe could be passed through the alveolus into the antrum although all the

teeth had live pulps and were not carious. J. G. Turner¹ describes a similar case where antrum infection took place in both antra at different times through the alveolus although all the teeth were sound. The second point is the method of vaccine treatment. In the cases I give three are still under treatment, and the tuberculous one was not treated by tuberculin; of the remaining ten all were of more than a year's duration, one of fifteen years and one of eight years, and in all a copious discharge of pus was present. All the cases were being washed out twice daily by the sufferers. Without going into elaborate details, the treatment adopted was the determination of the infecting organism by bacteriological and opsonic means; secondly, immunisation by means of vaccines, starting with an appropriate stock vaccine, and finally, whenever necessary, with a vaccine prepared from the patient's own organisms. Bacteriological examination was further made from time to time, and the diminution or an absence of the organism immunised against noted and the case treated accordingly. The results of the treatment have been most encouraging; in all cases a great improvement in the patient's general health has occurred, and the anæmia and toxæmia, which is present in practically all cases of chronic antral suppuration, disappeared. The headache when present was also relieved. In most cases a diminution in the pus has taken place, in six cases the discharge has stopped, in one case the discharge is now intermittent. There is no disguising the fact that in certain cases antral suppuration persists for many years despite operations, constant use of antiseptic lotions, etc. The discharge in some instances tends to gradually diminish, due no doubt to the gradual immunisation of the patient to the infecting organisms, so that an attempt to accelerate the process by immunisation is a directly proper procedure. The inoculations necessary are by no means frequent. Free drainage is essential, but free drainage is not necessarily the removal of the whole anterior wall of the cavity. But in those not infrequent instances where the patient shrinks from the complete operation, and where also the frontal sinus is involved, the method should certainly be tried. No. 8 was such a case, and the patient, from being a chronic invalid, is now able to play in tennis tournaments.

Mr. STUART LOW (London) attached the greatest importance to dental caries as a causative factor in antral pathology, and directly or indirectly this was in his experience the commonest cause. The nose often became affected from the septic mouth through the naso-pharyngeal route, just as the ear frequently did through the Eustachian tube route. In such a way the nose became blocked and the antrum diseased. This means of contamination had not hitherto been insisted upon, but was undoubtedly a real cause of antral implication. In acute and subacute conditions he differed from Mr. Tilley on the practice of alveolar puncture, having ceased to perform it, giving preference to Lichtwitz's puncture, and, if failing in this way to effect a cure, he then made use of Killian's method of sinus ablation through the natural orifices after enlarging them. In the treatment of chronic cases Mr. Stuart Low preferred to carry out the radical operation from the canine fossa. He again differed from Mr. Tilley in demurring to his plan of removing the anterior half of the inferior turbinal, removing instead the middle third. This gave free, unhindered, and spontaneous drainage. He hoped Mr. Underwood would continue his researches.

¹ *Trans. Odont. Soc.*, 1902.

Bacteriological Examination of Fourteen Cases of Antrum Suppuration, by Mr. K. W. Goodby.

No. and sex.	Antrum affected.	Method of infection.	Direct smears from pus.	Organisms isolated.	Other smears involved.	Vaccine treatment.	Notes and result.
1. F.	Left	Pyorrhea alveolaris	Fine bacilli, thick bacilli, both related to Fusiformis, diplococci, and cocci in clumps	Streptococcus brevis, Staphylococcus aureus and albus, B. fusiformis aerogenes; fine bacilli not identified	No	Streptococcus, staphylococcus, B. fusiformis	Several acute attacks of periostitis and osteitis, with great swelling of lip, associated with staphylococci, which were obtained three times from the maxilla during attack. No attack last 6 months. No pus. No pus for 3 months in either antrum.
2. M.	Right and left	Dento-alveolar abscess from tooth, first premolar	Streptococci; some short bacilli	Streptococcus brevis, Bacillus Friedländer	No	Streptococcus, B. Friedländer	Headaches cured. Suppuration still present; worse when patient "catches cold." No suppuration for 2 years.
3. F.	Left	Ditto, first molar	Cocci in pairs and chains; a few short bacilli	Staphylococcus aureus, Bacillus Friedländer, Streptococcus brevis	Sphenoïd, ethmoid, frontal; all operated on	Staphylococcus, B. Friedländer	Under treatment.
4. F.	Right	Ditto, first premolar	—	Staphylococcus albus; bacillus not identified	No	Staphylococcus albus; bacillus	After four injections the suppuration practically ceased. Owing to accident to patient treatment suspended. No increase of pus has occurred.
5. M.	Left	Pyorrhea alveolaris	A few cocci, some in cells	Staphylococcus aureus, Saccharomyces neoformans	No	Staphylococcus aureus, Saccharomyces neoformans	
6. M.	Right	Pyorrhea?	Yeasts, some with a distinct mycelium; few cocci	Staphylococcus albus, Streptococcus brevis, Staphylococcus viscosus, Saccharomyces neoformans	No	Staphylococcus albus; yeast	

7. F.	Left	Pyorrhoea alveolaris	Diplococci, yeasts, spirilla, and threads	Staphylococcus aureus, Staphylococcus albus, Streptococcus brevis, Saccharomyces neoformans	No	Staphylococcus aureus, Staphylococcus albus, yeast	Under treatment.
8. F.	Left	Nasal?	Diplococci, some fine threads	Staphylococcus aureus, Staphylococcus albus, bacillus not identified	Frontal ethmoid? not opened	Staphylococcus aureus, Staphylococcus albus, bacillus	Suppuration intermittent; patient perfectly well; intervals between slight discharge becoming longer last 3 months. Patient under treatment.
9. M.	Left	Dento-alveolar abscess, tooth first molar	Diplococci, some in cells	Staphylococcus aureus	Frontal extirpated	Staphylococcus aureus	
10. M.	Right	Dento-alveolar abscess, tooth second premolar	Diplococci	Staphylococcus albus, Streptococcus viscosus, Streptococcus brevis; bacillus not identified	Frontal not opened	Staphylococcus albus, bacillus, streptococcus	Acute frontal sinusitis following influenza. Treated 3 months; pus diminished. Patient disappeared for 6 months, returned with increased pus. Treated 3 months. Suppuration ceased now 6 months.
11. M.	Right	Pyorrhoea alveolaris	Short bacilli, few cocci, spirilla, and spirochaetes	Staphylococcus citreus, Staphylococcus albus, Streptococcus brevis	No	Staphylococcus citreus, Streptococcus brevis	No suppuration for 4 years.
12. F.	Right	Dento-alveolar abscess, tooth first premolar	Diplococci and streptococci; cocci in cells	Staphylococcus aureus; Streptococcus longus	Frontal extirpated	Staphylococcus aureus, streptococcus	Suppuration after operation. Three months' treatment. No pus 18 months.
13. F.	Left	Pyorrhoea alveolaris	Diplococci and streptococci, some in cells; spirilla and spirochaetes; fusiform threads	Staphylococcus albus; Staphylococcus viscosus; Streptococcus brevis; B. fusiformis aerogenes	No	Staphylococcus albus, B. fusiformis, streptococcus	Acute attacks of periostitis and osteitis, associated with staphylococcal infection. No suppuration 4 months.
14. M.	Right	? Lung	Diplococci	B. tuberculosis by inoculation into guinea-pig	No	Operation only	Three months subsequent to operation tuberculous epiglottitis; operation.

Mr. C. EDWARD WALLIS (London) said: The point to which I want to refer is the method to be adopted for closing the orifice in those cases in which alveolar drainage has been employed. The plan of inserting a tube made of gold or other metal I will not refer to except to state that I entirely agree that it is unsatisfactory, and usually impedes rather than facilitates drainage. The plan that I adopt myself is to make a solid vulcanite plug in such a way that it fits exactly the orifice that has been made by the trocar. My own plan is first of all to take an impression with modelling composition not only of the alveolar orifice, but also of the mucous membrane adjacent, so that a solid vulcanite plug can be made which perfectly occludes the alveolar passage, but which is also provided with a flange or small piece of plate and gold clasp fitting round an adjacent tooth; by this means not only is the orifice closed, but the mucous membrane around is protected, and the plug kept absolutely steady. One other matter to which I desire to refer is a difficulty which sometimes arises between a dental surgeon and the medical practitioner owing to the fact that the practitioner frequently mistakes a tooth that has been stopped efficiently and aseptically, but which has become discoloured by copper amalgam for a tooth of which the pulp has died or become otherwise diseased; the same difficulty arises also when a general practitioner or throat surgeon fails to recognise the phenomena of arrest of caries, in which carious dentine has become perfectly hard and healthy again, and sends the dentist an imperative message to remove such and such a tooth, in spite of the fact that it has a living healthy pulp, and that the antral trouble has no relation thereto.

Dr. DONELAN (London) remembered when it used to be looked on as a sort of surgical triumph if by means of an alveolar puncture pus could be regularly forced through the antral ostium. He could not recall that any serious consequences followed. For the last seven or eight years he had been in the habit of operating in the first instance through the inferior meatus after removal of any teeth affecting the cavity. At first he removed the anterior end of the inferior turbinal, but more recently reflected it forcibly upwards with subsequent replacement. By increasing the length of the antral opening efficient drainage was procured in most cases, and for this purpose he had found a rectangular chisel he had had made very useful. It was only in cases in which this treatment failed he now proceeded to the Caldwell-Luc operation.

Dr. WILLIAM HILL (London) remarked that it had been tacitly assumed by most of the previous speakers that dental disease occupied a prominent place in the ætiology of antral suppuration. The prevailing view twenty years ago certainly was that chronic antral disease must be treated on this assumption, and most satisfactory results were claimed for alveolar puncture and lavage. As our knowledge of nasal disease improved with improved methods of investigation, the nasal origin and nasal treatment of chronic sinusitis became so emphasised that the dental aspects of this question were relegated to a very back position. The alveolar treatment, formerly so lauded, was discovered to be quite unsatisfactory in the majority of cases, and was only recommended in acute cases of undoubted dental origin—an insignificant number, at all events, in any rhinologist's practice. The recognition of the inadequacy of alveolar treatment and that of the frequency of the intra-nasal origin of chronic sinusitis had forced upon many of us the consideration of the question whether dental disease was, after all, more than an insignificant factor in the etiology of chronic sinusitis. On *à priori* grounds nothing

appeared to be more likely than that dental and alveolar lesions must be a frequent cause of antral sinusitis. Diseased teeth were present in the upper jaw of almost every individual, and abscesses in connection with the alveolar processes were not infrequent, and the close proximity of these lesions to the floor of the antrum seemed to lead irresistibly to the conclusion that the dental factor in causing sinusitis must be an exceedingly prominent one. This assumption was not, however, borne out by the speaker's experience, for, when looking on the anterior wall and floor of the orbit for evidence of antecedent gross lesions, such as fistulae, bare roots, roughened bone necrosis, these including even bony thickening, were conspicuous by their absence when the antrum was opened for thorough exploration by the Caldwell-Luc method. The morbid contents of the antrum in chronic sinusitis exactly resembled what was found in the frontal sinus when diseased. The granulomatous, polypoid-like thickening of the mucosa often filled the cavity, and when this was removed it was most exceptional to find even roughened bone. Though antral, in common with other forms of sinusitis, was often of infective origin, and suppurative *ab initio*, this was by no means always the case, as in some instances the degeneration of the mucosa, resembling and in association with turbinal polypus, was the first pathological change, suppuration being secondary. It was possible that a rhinologist, seeing, as was natural, such a large proportion of cases of sinusitis associated with polypi or following an acute nasal infective process, might have under-estimated the importance of dental disease as a causative factor. The presence, even in marked abundance, of any of the common micro-organisms associated with suppuration in both the antral and pyorrhoeal discharges afforded no ground for drawing any reliable inference, but the fact that Mr. Goadby had found so many as three cases in a small number of observations, that identical rare organisms were present both in the alveolar and antral discharges, provided criteria of a very different character, and compelled one to reconsider one's position, and it was possible that the dental factor was of far more importance than he (the speaker) had previously been inclined to admit. He was astounded at the remarkable results obtained by Mr. Goadby in selected previously intractable cases by vaccine-therapy. Of the value of this method of treatment in debilitated subjects after operation in the subacute stage there was, he thought, no room for doubt, but that equal success attended the adoption of Wright's vaccine treatment alone in chronic antral suppuration unrelieved by previous surgical measures would, he thought, come as a surprise to many, and if Mr. Goadby's results could be confirmed by others the outcome of that day's discussion would have justified the officers of the Dental Section in devoting the whole morning to this important subject.

MR. LEWIN PAYNE (London) said that whether teeth were considered to be a frequent cause of antral suppuration or not, the anatomical relationship was an exceedingly close one, and this had been emphasised by the pictures already thrown on to the screen. In cutting sections of a few skulls, one had been a little surprised to find that two out of eight showed the roots of molar or premolar teeth actually perforating the bony wall of the antrum. This proportion might be larger than normal, but it gave additional evidence as to the frequency of this association. Chronic suppurative periodontitis, or pyorrhœa alveolaris, was often found in connection with a tooth containing a live pulp, and it might cause empyema of the antrum. Such a case occurring in a lady, aged thirty,

was quoted. The onset of the trouble seemed to be quite acute. She had typical pain and high temperature, followed later by a discharge into the nose on the left side. The patient consulted a rhinologist, who found nothing in the nares to explain the cause. On mouth examination two or three small cavities were observed in various teeth, but the left upper premolars and first molar had been extracted, and the second and third molar teeth on that side were quite free from caries. The pulps were alive, and gave the normal response to the heat test. Around the necks of both teeth, however, there was a rim of dark tartar, and a distinct pocket of gum from which pus oozed upon pressure. Recognising these teeth as a possible cause of the trouble, they were removed, and it was found that the socket of the palatine root of the second molar communicated directly with the cavity of the antrum. This was an undoubted case of antral suppuration due to pyorrhœa alveolaris, in which the pulp of the tooth had retained its vitality. Mr. Payne mentioned the case of a patient who developed chronic antral suppuration in the left side, following influenza, and then two years later, during a recurrence of influenza, suppuration started in the right antrum.

Dr. W. S. SYME (Glasgow) asked Mr. Tilley if he had come across cases in which a tooth had been found in the antral cavity. Such a case came under his notice, in which part of a tooth was removed from the antrum after remaining in the cavity for eighteen months. At that time the patient's medical man had attempted to extract a first molar, but was only partially successful. An antral sinusitis resulted. Later a neighbouring tooth was extracted, and it was found that the floor of the antral cavity was absent. Through this opening the part of the former tooth was felt with a probe in the molar part of the antrum. It was easily removed with a hook. The antral empyema would require a radical operation.

Mr. G. A. PEAKE (Cheltenham) said: Rhinologists often condemned teeth unnecessarily; for example, they often sent patients with peremptory orders to have extracted teeth that are perfectly sound but discoloured from the filling, also crowned teeth that are quite sound and aseptic. Care should be exercised in diagnosing harmless from harmful crowned teeth. As for syringing antrums through an opening in the alveolus, was this likely to infect the nasal passages? He had a case in which the patient was sent complaining of slight antrum symptoms; eventually the antrum was opened and a slight amount of pus let out. After three to four weeks of syringing through the tooth socket chronic suppuration of the ethmoidal cells became evident, and this had gone on ever since. Was the nasal trouble infected from the antrum, or was the antrum trouble secondary to the nasal? Would it not be more advisable always to syringe through the nasal opening and out either through the canine fossa or through a tooth socket?

Dr. DUNDAS GRANT (London) regretted that he had not heard the preceding part of the discussion, as he had been detained in the Section of Laryngology; he thought it would have been desirable for the discussion to have taken place at a joint meeting of the two sections. There were cases in which the intra-nasal route is obviously the best, as, for instance, when the teeth were typically perfect, as in one of the very earliest cases in his career (a young lady unexpectedly cured by two irrigations by means of Lichtwitz's trocar), and in one of the most recent (a Russian girl, whom he brought before the Laryngological Society, cured by means of intra-nasal opening), also in cases of young children

whose second teeth were still buried in the superior maxillary bone (as in a little girl, aged six, on whom he used Krause's trocar under anaesthesia by Mr. Carter Braine). On the other hand, there were cases where the alveolar opening was as strongly indicated owing to the presence of an obviously diseased tooth. There were, however, cases in which there was room for doubt, and in these he thought the nasal route should have the preference. We had to remember that an opening between the antrum and nose was normal, and one between the antrum and mouth abnormal, and a source of infection. The argument that the alveolar opening was lower than the nasal one, and therefore more favourable for drainage, was of no value whatever. The alveolar opening was not for drainage, it was for irrigation. The great and the only advantage of the alveolar opening was its unequalled convenience for irrigation by the patient. Moreover, those who had considerable experience and reasonable patience had seen numbers of cases recover under no other treatment. However, if steady diminution of the suppuration did not take place, something further must be done, and this ought, if possible, to be an intra-nasal operation. The canine fossa opening had enormous advantages so far as free access to all parts of the antrum was concerned, and when the teeth corresponding to it were absent or diseased beyond repair he had no compunction in opening this region quite freely. On the other hand, it was unjustifiable in children—useless, indeed, in the cases of so-called antral abscess in infants, which is more usually an osteitis, sometimes tuberculous. He avoided it also in adults as interfering with the nervous and vascular supply of the teeth. For the alveolar opening he employed a dental engine or motor, and flexible shaft with a small trephine. This took out a little cylinder of bone and left an opening which lasted as long as it was desirable to use it. In point of fact it could be kept from closing by introducing the point of the antral irrigation tube after irrigation was given up. If the discharge did not greatly diminish or disappear before this closed a radical operation was required. He ventured to disparage the ingenious tubes made for the alveolar opening. There was no doubt they were often models of perfection. They were always foreign bodies, and in time—in some cases all the time—a cause of irritation. He had seen so many cases in which the irritation from the tube seemed to survive its use that he had come to think it often a perpetuator of the disease. In fact, when a case of antral suppuration which had persisted for months in spite of syringing through a tube came before him, the first step he took was to order the removal of the tube, and in numerous instances the disease subsided after the removal of this mechanical irritant. If a tube was employed at all, it must be of the most perfect make and material. A simple spiral wire tube was a conductor of infection from the mouth to the antrum. If we could clinically differentiate cases of nasal origin from those of dental origin, we should treat the former through the nose, the latter through the alveolus, but in cases of doubt open through the nose. In undoubted odontogenic cases, or when the patient was left to his own resources, open through the alveolus.

The PRESIDENT (MR. HARRISON) in concluding the discussion, remarked how the features of our ancestors, as portrayed in old paintings, showed a greater development of the facial bones, and he would suggest to Mr. Underwood the investigation of this point in his further researches. In reviewing his own experience of diseased antrum from dental causes, he was bound to say that the dental cause was very small, and, considering the large amount of dental suppuration, antral disease was relatively

smaller. Perhaps sometimes the teeth were secondarily infected from the nose.

Mr. HERBERT TILLEY, in reply to the discussion, said that he had two teeth in his possession in which alveolar suppuration was associated with antral empyema, and the teeth were apparently sound; this seemed to bear out Mr. Goadby's assertion. He joined issue with Mr. Stuart Low, and maintained that if an antral empyema were obviously of dental origin, the infecting tooth or focus should be dealt with before other treatment was instituted. The speaker removed the anterior end of the inferior turbinal in the Caldwell-Luc operations because he had found cases drain better when the small preliminary was carried out. The loss of the anterior end of the inferior turbinal was of no practical moment. The vulcanite antral plug he used was quite easy to sterilise. He thought that the reason many cases of antral suppuration were unrecognised was because medical men would not take the trouble to examine a patient's nose when the latter complained of "catarrh"; if they would do so, many of such cases would prove to be antral empyemata. The speaker had seen one loose tooth in the antral cavity, and he had opened some five hundred; he had frequently found drainage-tubes, etc. Dr. Grant thought dentists made a mistake in leaving antral tubes in too long; surely this suggested the un wisdom of "tubes" for most cases, and the necessity for a better method of drainage which the speaker was advocating.

Mr. UNDERWOOD said the specimens and slides he had shown demonstrated that long-continued suppuration in a tooth tended rather to avoid than to perforate the antrum. The septa in the antra were all vertical. The skulls examined were not prehistoric, but were about sixty years old, and were from various sources. With Professor Keith's assistance he proposed to continue his investigations.

THE SOCIETY OF SOUTH GERMAN LARYNGOLOGISTS.

Fifteenth Meeting held at Heidelberg, June 7 and 8, 1908.

BRÜNINGS (Freiburg) read an interesting paper on *The Principles of Illuminating Endoscopic Tubes*.

There are three methods of illumination available: (1) Lamps within the tube; (2) lamps external to the tube; (3) lamps external to the tubes, with also a separate path for the rays of light within the tube.

Tubes with internal lamp, though most suitable for cystoscopy, are not suitable for illuminating the air-passages, for although the illumination at the mouth of the tube is brilliant, the light is not

projected downwards and consequently orientation is difficult. An external lamp is necessary; the rays of light are made parallel by lenses or a concave mirror, and are projected down the tube. A much more powerful lamp can be used than in the case of the internal lamp. Brünings demonstrated his electroscope, which is of the second type. The lamp is sufficiently far from the mouth of the tube to permit of free manipulation of instruments within the tube. One disadvantage of an external lamp is that the tube itself is also brightly illuminated. An attempt has been made to overcome this by conducting light down a part of the tube separated from the rest of the tube by a partition. The great disadvantage of this which outweighs the advantage is that the available room is greatly encroached upon, and in children this method is impracticable.

Brünings concludes that the second method of illumination is by far the most satisfactory.

KÖRNER (Rostock).—*Analogies in the Clinical Course of Oculo-motor and Recurrent Paralysis.*

When a temporo-sphenoidal abscess of otitic origin reaches a certain size, the oculo-motor nerve is often injured at the base of the skull and paralysis is caused. Invariably the fibres to the levator palpebræ superioris, or to the sphincter iridis, or to both, are first affected, while the fibres supplying the muscles which move the eyeball are affected later on or not at all. The author had as early as 1894 pointed out the analogy between this and the early involvement of the posticus fibres in recurrent paralysis. He explained that the oculo-motor paralysis is one of the trunk of the nerve, not of the nucleus, and further showed that in nuclear lesions no such limitation of paralysis occurs. This suggests that in nuclear lesions of the vagus Semon's law will not hold good, and Körner argued that Semon's law is not applicable to bulbar affections.

GORIS (Brussels).—*Radical Operation on a Beginning Sarcoma of the Nasal Septum.*

The patient, a lady, aged twenty-four, had suffered from epistaxis for several weeks; on examination a small bleeding tumour was seen on the cartilaginous part of the septum. Microscopic examination showed that the tumour was a sarcoma. Access was gained by turning up a flap formed by the left side of the nose, and the

tumour, with an area of healthy cartilage 1 cm. broad, was removed. The septal perforation was closed by a flap of mucous membrane.

GUYOT (Geneva).—*Tuberculous Tumour of the Nose and Maxillary Antrum.*

The patient, a young woman, aged twenty-five, in the fifth month of pregnancy, complained of difficulty of nasal breathing of three months' duration. In the nose on the left side a dark red tumour was seen, which bled very readily if touched. On partial removal it appeared to spring from the middle meatus; proof puncture of the antrum was negative, but only a small quantity of water could be injected. The general condition of the patient got gradually worse, so the antrum was explored through the fossa canina. A granulating mass was found which extended into the nose. On microscopic examination numerous tubercle bacilli were found in the tissue. The patient died shortly afterwards of acute tuberculosis.

Gerber has collected 150 cases of tuberculous tumour of the nose. They usually spring from the septum. Guyot could only find in the literature two cases in which the tumour arose from the antrum. The diagnosis may be very difficult, as the condition may readily be mistaken for malignant tumour.

MANASSE (Strasburg).—*On the Pathology and Therapy of Malignant Tumours of the Accessory Sinuses.*

The patient, a woman, aged forty-eight, complained of blockage of the right side of the nose and headaches. A swelling could be made out at the inner canthus, elastic to the touch, and within the nose a tumour was seen apparently replacing the middle turbinated body.

Diagnosis.—Mucocoele. The tumour in the nose was removed, and on microscopic examination proved to be a spindle-celled sarcoma. A radical operation was performed on the frontal sinus and ethmoid labyrinth, and the tumour masses were thoroughly removed. No return after one and a half years.

A. MEYER showed *Preparations from a Case of Leukæmic Affection of the Larynx.*

KANDER (Karlsruhe).—*Tumour in the Cerebello-pontine Angle with Escape of Cerebro-spinal Fluid from the Nose.*

The patient, a woman, aged sixty, had suffered for ten years

from disturbance in her walk, for three to four years from giddiness and headache, and for three years from increasing deafness on the right side. On March 21, 1906, examination showed: Gait spastic, increased patellar reflex and Babinsky's sign present on both sides, optic neuritis on both sides; paresis of the middle and lower divisions of the facial nerve on the right side; right half of the tongue atrophic; trigeminal nerve on the left side impaired. These appearances all became more marked. In November a continuous stream of cerebro-spinal fluid was observed from the right side of the nose, about 50-60 c.cm. a day. The patient died in September, 1907.

At the section a glio-sarcoma was found in the right cerebello-pontine angle; a neighbouring part of the sphenoidal bone was eroded, thus allowing of the escape of cerebro-spinal fluid through the nose.

F. R. NAGER (Basel).—*On Tumours of the Naso-pharynx.*

The author gave the histories of seven cases of tuberculous tumour of the naso-pharynx. They were removed with the curette; the tuberculous nature of the tumour was only recognised after microscopic examination. The symptoms were the same as in the case of adenoid vegetations. In three cases there were other tuberculous processes present.

The histories of three cases of fibroma were also detailed. The tumours were removed by forceps through the mouth; there was no return. Finally he reports a case of sarcoma.

F. SCHÄFER (Munich) showed a *chair* which he had designed for use in the consulting room. It can be readily converted into an operating table.

JURASZ (Heidelberg).—*Demonstration of a Remarkable Anomaly of the Naso-pharynx.*

A curtain-like fold is to be seen in the naso-pharynx joining the two Eustachian cushions. The mucous membrane covering it appears normal; no cicatrices are to be made out. The author could give no explanation of this unusual appearance.

W. G. PORTER.

Abstracts.

PHARYNX.

Semon (London).—*A Return to the Question of Pneumococcal Invasion of the Throat.* "Monats. für Ohrenheilk," Jahrg. xlii. Heft. 7.

Sir Felix Semon gives the history of a case of ulceration in the throat, which presented to the mind of the physician who saw it some months before the appearance of tertiary syphilis of the tonsil, but which had not improved under treatment with iodide of potassium and mercury. The patient was in a state of great depression, with severe pain shooting from the throat up to the right ear and extreme dysphagia. The right tonsil was scarcely enlarged, but was covered with a thick whitish exudation, which extended upwards in the naso-pharynx to the level of the Eustachian tube, inwards on the soft palate as far as the base of the uvula, and downwards to the level of the base of the epiglottis and over the right third of this body. The breath was extremely foetid. There was a striking absence of any enlargement of the cervical glands on the right side, but the whole of the right lateral cervical region about the sternomastoid muscle was extremely tender on movement and pressure. Palpation of the tonsil was extremely painful in spite of the application of cocaine. It was then found that the exudation covered a large funnel-shaped ulcer with the apex running downward, and which obviously extended through the whole thickness of the tonsil. The inner surface of the ulcer and its base felt soft and pulpy, so far as could be made out through the exudation, and the margins were neither raised nor indurated. The treatment was locally antiseptic and constitutionally supportive, and after various fluctuations the patient slowly recovered. The bacteriological examination showed the immense predominance of the pneumococcus. The writer discusses the diagnosis from syphilis, and refers to the extreme rarity of the condition. *Dundas Grant.*

Nobécourt, P., and Tixier, Léon.—*Note on Hypertrophy of the Pharyngeal Lymphoid Tissue: Its Relations with Tuberculosis.* "Gazette des Hôpitaux," September 22, 1908.

The authors have investigated twenty-two children, the subjects of adenoids and hypertrophied tonsils, their ages ranging from thirty-one months to fourteen years. The tonsils, naso-pharyngeal and palatine, were submitted to bacteriological and histological examination, and the children underwent the tuberculin tests (subcutaneous, skin, and ophthalmo-reaction). The results are appended in tabular form.

Out of these children, thirteen had no clinical manifestations of tuberculosis: in six the signs were doubtful (peripheral poly-adenopathy, mediastinal glandular enlargement and apical bronchitis). In three only was tuberculosis unquestionable (two, incipient tuberculosis of the apex, and one, tubercular cervical glands). Subcutaneous injection of tuberculin in a dose of 1 milligramme was made in eighteen subjects. A positive result followed in seven instances, two of which were considered clinically tuberculous.

The skin-reaction was applied in eighteen cases; the result was positive in twelve, especially so in the case of two known to be tuberculous and in two others suspects, who had reacted to the subcutaneous injection of tuberculin.

The ophthalmic-reaction test was practised thirteen times; a positive result followed four times only, especially so in two admittedly tuberculous.

In short, as a result of the tuberculin tests only five out of twenty-two children could be considered free from tubercle, yet the majority of them enjoyed good health. The tonsils were inoculated into guinea-pigs, but many of them died too rapidly to afford any information as to tuberculosis. In seven where an autopsy had been made at the correct period no tubercular lesion was found; amongst these were two which had been inoculated with tissue from tubercular children. As regards inoculation with adenoid vegetations, in one case only was a pig tuberculised, and in this instance the vegetations belonged to a child not clinically tuberculous. The tonsils were histologically examined in sixteen cases and adenoids in fifteen; no tubercular focus was observed. Multiple sections were made from the vegetations which had tuberculised the guinea-pig, but revealed nothing. Preparations stained by Ziehl's method gave no indications of Koch's bacillus. Tuberculisation had no doubt been determined by bacilli, existing either on the surface or deep in the naso-pharyngeal mucosa, but which in any case had not had time to set up specific lesions there. The writers conclude as a result of these researches that proof is wanting that the pharyngeal lymphoid tissue serves as a portal for bacillary infection. The observations, besides, go to show the existence of cervical and mediastinal non-tubercular adenopathies amongst the subjects of adenoid vegetations and hypertrophied tonsils.

H. Clayton Fox.

NOSE.

Mermod (Lausanne).—*Unilateral Ozena and Subcutaneous Resection of the Septum.* "Annales des Mal. de l'Oreille, du Larynx, du Nez, et du Pharynx," August, 1908.

According to the author's experience, unilateral ozena does not occur when the nasal fossæ are of equal calibre. It is invariably associated with deviation of the septum, and the wider fossa is the seat of the malady. In a typical case of the kind, one finds the narrower fossa in a state of catarrhal rhinitis, the result of mechanical obstruction, while on the wider side there are crusts, fœtor and dryness, the inferior turbinated body is atrophied and the middle one either hypertrophied or the reverse. Difficulty in breathing is experienced equally on both sides, in the one case arising from encroachment of the septum and catarrh, and in the other from crusting and dryness. In dealing with these cases, the writer has obtained the most happy results from submucous resection; it is necessary to avoid a perforation, which is not difficult, for in the cases in question the septal mucosa is never so atrophied as that of the turbinated bodies. Details of four cases instancing the success of the operation are given. In all the catarrh on the narrowed side was cured, whilst the crusting, discharge, fœtor and dryness on the ozenatous side ceased, the mucosa became more or less moist and lavages could be dispensed with.

H. Clayton Fox.

Grace, R.—*The Treatment of Hay Fever.* "Therapeutic Gazette," August 15, 1908.

The author considers nasal operation leaving scar tissue liable to be dangerous, and advocates painting the congested and sensitive area of

the nasal mucous membrane with a 2 per cent. solution of "Nargol," a silver nucleide. The treatment is continued every third day until the membrane "assumes a normal appearance and the sensitiveness disappears." Cases are given.

Macleod Yearsley.

NASO-PHARYNX.

King, Gordon.—*Report of Cases.* "New Orleans Med. and Surg. Journ.," September, 1908.

The cases reported are: (1) A case of fibroma of the naso-pharynx removed by avulsion: A boy, aged nine, operated upon for adenoids two years previously, the operation being followed by severe hæmorrhage. The fibroma was sessile, attached to the vault of the pharynx and the right choanal margin. Removal by avulsion was attended by severe hæmorrhage and collapse. (2) Sarcoma of the mastoid following operation for mastoiditis: A woman, aged sixty-eight, with old suppuration. The mastoid wound failed to heal, and a second operation for great pain and swelling revealed a mass of new tissue encroaching on the meninges. This proved to be a round-celled sarcoma. Patient died soon after from rapid recurrence. (3) Purulent meningitis of otitic origin, *via* Fallopiian canal and internal auditory meatus: A negro, aged twenty-three. (4) Complete aphasia and right hemiplegia complicating acute otitis media; relieved by cerebral exploration. A girl, aged two and a half; suppuration followed measles. Left pain was treated by free myringotomy. One week later, sudden aphasia and paralysis of right arm and leg. Operation refused for a week. Radical mastoid, cranial cavity explored; brain was congested, but no abscess found. Patient recovered completely.

Macleod Yearsley.

LARYNX.

Iwanoff, A. (Moscow).—*The Laryngeal Affections met with in Syringobulbia.* "Zeitschrift. f. Laryngol.," vol. i, Part I.

The author has observed certain characteristics of the laryngeal paralysis occurring in syringobulbia, which he regards as pathognomonic of the disease. Of twenty-eight cases in which the larynx was affected, seven showed typical right or left recurrent paralysis. In the remaining twenty-one the condition was quite different, the paralysis being incomplete on one or both sides of the larynx, and of such a kind as to show a departure from Semen's rule that the musc. posticus is first involved. In all of these cases on one side at least some other muscle (most often the thyro-arytænoidens internus or the aryta-noidens transversus) was paralysed, while the crico-arytænoidens posticus remained intact. It is this atypical mode of onset of the paralysis in the course of which individual muscles are affected which the author considers characteristic of the disease.

The laryngeal conditions found in syringobulbia differ from those occurring in syringomyelia. In the latter the paralysis is usually unilateral and complete (or sometimes affecting the musc. posticus alone), while in syringobulbia the paralysis is bilateral, and shows on one side at least the peculiar features mentioned above. In tabes

dorsalis the paralysis is always bilateral and follows Semon's rule. In disseminated sclerosis an atypical paralysis similar to that observed in syringobulbia may occur.

Thomas Guthrie.

TRACHEA.

Streit, H. (Königsberg).—*The Healing of Infected Tracheal Wounds.* "Arch. für Laryngol.," vol. xx, Part II.

The writer gives in detail the results of his experiments on seventeen full-grown cats. In each case tracheotomy was performed and the wound was inoculated with a fresh culture of capsulated bacilli and left open. Some of the animals died of septico-pyæmia or pneumonia; the others were killed after a certain number of days or weeks, and the trachea and wound were histologically examined.

Epithelium.—Regeneration was found to begin early, and on the third day a thin layer of flattened epithelial cells was seen spreading from the edge of the old epithelium. On the fifteenth day the continuity of the epithelial covering was largely re-established. On the twenty-seventh day many ciliated cells were present, but in this respect restitution was not complete even after five months.

Glands.—Regeneration of these was first observed some five or six weeks after the operation, and after a period of five months they were present in the mucous membrane in almost normal quantity.

The cartilage twelve days after the operation showed definite signs of regeneration, in the shape of collections of cartilage-cells in relation with the cut tracheal cartilages. In the interval between the cut ends new formation of cartilage was observed on the fifteenth day. On the forty-third day the cut ends were found to be united partly by dense connective-tissue bundles and partly by young cartilage, apparently of perichondrial origin; a strong perichondrial capsule covered the outer surface of the cartilage.

The author's results agree in the main with those of Barth and Marchand.

Thomas Guthrie.

THYROID.

Trotter, W. (London).—*Malignant Disease of the Thyroid.* "Clinical Journal," September 13, 1908.

In a lecture on early clinical types of certain diseases, the author refers to the "minimal signs" upon which can be based a judgment sufficiently certain to render an operation necessary in carcinoma of the breast, traumatic compression of the brain, actinomycosis of the lung, and malignant disease of the thyroid. With regard to the last he gives the minimal picture in a very compact form: "A patient who has had a goitre for some years notices that it is beginning to increase in size and is becoming harder. Physical examination reveals a swelling—it may be quite small—which has no longer the perfectly distinct and globular outline of an adenoma and is not movable within the substance of the thyroid. It is hard, nodular, and can be felt to be welded with the thyroid substance. Such a tumour must be operated on, though there is no limitation in the movement of the thyroid and trachea during swallowing, no compression of the œsophagus, and no involvement of the trachea, recurrent laryngeal nerve, or carotid sheath."

Dundas Grant.

REVIEWS.

Contributions to the Topographical Surgical Anatomy of the Mastoid Region [Beiträge zur Topographisch-chirurgischen Anatomie der Pars Mastoidea]. By Hakase Dr. H. E. KANASUGI, with 40 plates of life-sized photographs of preparations. Vienna and Leipzig: Alfred Hölder.

Dr. Kanasugi's work gives us a good deal of practical information about the mastoid region, particularly about some varieties in its formation which are often overlooked. He examined four thousand skulls and found varieties in size and shape of the process, catamastoid and anamastoid types of skull, multiple mastoid notches, duplication of the apex, or very rarely of the entire process, persistent mastoido-squamosal fissure, absence or multiplicity of mastoid foramina, occasional paramastoid (para-occipital of Flower) process, and dehiscence of the mastoid process or of the tympanic bone. From radiographs he makes out that in general small short processes are diploëtic and large ones pneumatic, and also that the sinus is most favourably placed in strongly developed mastoid processes, least so in the small ones. The sections being of life size the topographical relations of the neighbouring parts of the brain, etc., can be seen and measured with ease by anyone preparing to operate in this region. The work is got up in the same style as the one on the brain and nasal accessory sinuses by Professor Onodi, to whom the author acknowledges his indebtedness for permission to use his anatomical material. The book is of real practical utility and may be purchased most confidently.

Extra Pharmacopœia of Martindale and Westcott. Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B.Lond., D.P.H. Thirteenth edition. London: H. K. Lewis, 1908.

This remarkable work is so replete with items directly and indirectly connected with our specialties that it is scarcely possible to be without it. If a remedy is not to be found in "Martindale" it is unlikely that it is to be found anywhere. The various tables of equivalents (temperature, etc.) will be constantly in demand, and the analyses of many "patent" medicines are instructive and, in a sense, entertaining. The additions to the previous edition are numerous and valuable.

BOOKS RECEIVED.

William Lincoln Ballenger, Professor of Otolaryngology, etc., University of Illinois, etc. *Diseases of the Nose, Throat, and Ear, Medical and Surgical.* Illustrated with 471 Engravings and 16 Plates. Pp. 905. London: Henry Kimpton. Glasgow: Alexander Stenhouse. 1908.

Macleod Yearsley, F.R.C.S., Senior Surgeon to the Royal Ear Hospital, etc. *A Text-Book of Diseases of the Ear.* Pp. 452. London: Kegan Paul, Trench, Trübner & Co. 1908.

THE
JOURNAL OF LARYNGOLOGY.
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

**DR. OTTO FREER AND SUBMUCOUS RESECTION OF
THE SEPTUM.**

WE publish in this number a letter from our esteemed colleague, Dr. Otto T. Freer, of Chicago. In this communication he refers to a statement in the "Retrospect of Rhinology" published for the year 1907, which appeared in our issue of January this year, in which it is stated: "That no modification of the submucous resection (Killian) operation for the relief of septal deformities of any real importance has been suggested, and this method of procedure as originally advocated by Killian retains the popularity it so richly deserves."

We have much pleasure in placing before our readers this statement of his views, with which we thoroughly sympathise, even if we are not prepared to subscribe to them *in toto*. In so doing we do not accept any responsibility for them, but we feel certain that our readers will give anything published by Dr. Freer the respectful and careful consideration which his world-wide reputation deserves.

We should be exceedingly sorry if any views expressed in our columns should not give full credit to Dr. Freer, whose work every surgeon in our special department fully appreciates and ought to recognise. We might point out in this connection that in a review entitled "Deviation of the Nasal Septum," published in the December number of this JOURNAL, 1906, the following words occur: "To judge fairly in questions of priority is always a difficult matter, and in so doing controversy frequently results, but the

names of Freer and Killian will always be honourably associated with the operation of submucous resection. Freer admits that Killian began his work before he had done so, but at the British Medical Meeting in August, 1902, the reports of which are published in the *British Medical Journal* for that year, it was quite clear that Killian had mastered the details of the work. Freer claims that Killian's first published papers, which caused so many to follow him, were published after his. It is at least fair to say that to Freer, in America, and to Killian, on the Continent, we are mostly indebted for the present position of the operation. From this it will be seen that we have every desire to give credit where it is due, and it gives us great pleasure to repeat what has been so frankly expressed in the review referred to.

It is true that the merit of the first announcement of the essential principles of the method of the resection of the deflected cartilage and bone belongs neither to Professor Killian nor to Dr. Freer, because it was Krieg who first suggested it. It is customary to speak of Killian and Freer's operations, but in a sense it would be correct to speak of the methods of these two operators rather than of their operations. Our readers will be able to judge of Dr. Freer's claims from his own letter, and whatever inference may have been drawn from the words contained in the retrospect referred to by him we sincerely say that we should regret having said anything which would in the least detract from the credit due to him.

There can be no doubt that there is justice in Dr. Freer's claim that there has been a tendency in this country to quote the name of Killian more frequently than Freer, and it is only fair to say that the work of the latter, which was quite independent of Killian and which was published before his, should be fully recognised. There can also be no doubt he is quite right in saying: "That as soon as his work was known many of his own countrymen adopted it." Probably the truth lies in the statement that *there is room for both methods*, and Dr. Freer indicates this in the last sentence of his letter, when he states that he expects, for a long time at least, operators will only make use of his more difficult procedure for children and extreme or cicatricial deviations.

WE have much pleasure in announcing that Dr. StClair Thomson has been appointed Professor of Laryngology to King's College, London.

THE EFFECT ON VOCAL PITCH OF THE CONTRACTURE OF THE THYRO-ARYTÆNOID MUSCLES.

By J. D. LITHGOW, M.B., C.M., F.R.C.S. EDIN.,

Assistant Surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh.

THAT the thyro-arytænoid muscles play an important part in the production of the human voice has long been known. Ambrose Parey (1), who called them the fifth pair of laryngeal muscles proper, describes them as taking part in the dilatation and constriction of the glottis, whereby the vocal sounds become correspondingly low or high in tone.

Up to the year 1700, when Dodart (2) published his first memoir on the human voice, little exact examination into the function of these muscles appears to have been made. Dodart is the first to consider what effect the contracture of the thyro-arytænoids has upon the tension of the lips of the glottis, but he attaches greater importance to the probable effect of that tension on the size of the vocal aperture. It was Ferrein (3) who first gave weight to the tension and length of the vocal cords, as he named the free borders of these muscles, as factors influencing vocal pitch. In more recent times a distinct advance in our knowledge of this subject is due to Müller (4), who, as a result of many series of painstaking experiments upon the recently extirpated human larynx, formulated a hitherto unknown theory as to a double action of the thyro-arytænoid muscles, whereby "vocal compensation" is brought about.

During the last century and, indeed, to-day, such authorities as Magendie (5), Lehfelddt (6), Savart (7), Benmati (8), Willis (9), Bishop (10), Müller (11), Garcia (12), Wyllie (13), Helmholtz (14), Semon (15), Hodgkinson (16), Oertel (17), Mills (18), Morell Mackenzie (19), Lermoyez (20), Castez (21), Curtis (22), Aikin (23), and Perretière (24) differ in opinion as to the manner in which vocal pitch is determined. There appears to be a tendency of observers to attach themselves to one or other of two schools of thought upon this subject, it being maintained on one hand that when the thyro-arytænoids contract the glottis is thereby shortened or the tension of the glottis is increased, and thereby the tone is raised in pitch; on the other hand, that when these muscles contract the vocal cords are slackened or the tension of the glottis is diminished, and of necessity the pitch must fall. The purpose of the present paper is to indicate that whereas the passive lengthening

by external forces of these muscles produces a corresponding rise of vocal pitch, their shortening by active contracture causes the pitch to be lowered in tone, and to show why this must be so, as the result of the physical properties of the muscles concerned. A brief and uncontroversial *resumé* of the physiology of the production of vocal sound may not be out of place. A breath is taken, the glottis is more or less firmly closed, the air inspired is compressed by the action of the respiratory muscles, when the amount of force tending to expel the air from the lungs becomes greater than the constricting force at the glottis, resisting its emission; the latter is thereby momentarily opened and a puff of air escapes; thereupon the pressure in the lungs is diminished, and again the glottis gains the upper hand and closes; so on goes the struggle between these opposing factors, with the result that if these puffs of air are regular in occurrence and follow each other sufficiently rapidly to cause a continuous acoustic impression, then a musical tone results, which will vary in quality according to the niceness of the balance of the two opposing forces.

Whatever be the pitch of the vocal tone produced, the relation of the producing forces will be proportionately the same, while the amount of sound, or its loudness, will correspond to the intensity of the struggle at the glottis. When a larger quantity of air passes out of the glottis at each puff, its velocity will be greater and the amplitude of the vibratory excursions at the glottis will be increased. Thus, from either one or both these factors the sound-waves are rendered more sonorous. If the respiratory force alone is increased, the constriction remaining the same, the note rises in pitch, probably owing to the increased stretching of the edge of the glottis, whereby augmented resistance with quickened recoil and closure of the orifice is brought about, and the note so produced will be harsh and shrill in character, its pitch uncertain and inconstant. A greater expiratory effort would throw the glottis widely open and no phonation would result, a cough or similar sound taking its place. If the amount of constriction alone is varied, as a result of the elasticity of the principle elements concerned, *i. e.* the thyro-arytænoid muscles, the pitch will increase with the elasticity and *vice-versâ*. Should the constriction of the lips of the glottis be sufficient to prevent the exit of air the phonation ceases. It is evident that the state of tension of the vocal cords, *i. e.* of the thyro-arytænoids and vocal ligaments combined, however produced, will influence the pitch of these sonorous vibrations. The vocal cords can only so act in virtue of their inherent properties of elasticity.

An analysis of the constricting force at the glottis shows the glottis flanked by the thyro-arytænoid muscles, which, in virtue of their position, command the egress of air therefrom. These muscles on their free border have the vocal ligaments, which adapt themselves closely to, and follow intimately, the various states of both passive extension and active contraction of these muscles, and thereby serve the purpose of accurately closing and apposing the edges of glottis at each state of tension. Although, as mentioned by Lohfeldt (6), these free edges or vocal ligaments, when the glottis is slightly open, alone vibrate without the muscle participating, and thereby producing what he calls a falsetto, one may neglect this whispered pitch production as not being, strictly speaking, the natural singing voice. Müller has shown that the vocal ligaments alone have a range of pitch which coincides approximately with, although greater in extent than, that of the voice produced by the whole vocal cords, that is, the thyro-arytænoid muscles and vocal ligaments together in ordinary tone production, but that the quality and amount of tone produced by them alone is shrill and little sonorous, while with a more firmly closed glottis the whole breadth of the vocal cords participates in the vibration, and the sound resulting therefrom closely resembles that of the ordinary human voice in timbre and range. Müller found further that the more the thyro-arytænoids were involved in the vibration the louder became the voice without the pitch being raised by an increased expiratory blast, and that conversely that a softer note might be produced when the blast was weaker without the pitch falling; this Müller called "vocal compensation," and deduced it as the principal function of these muscles.

Wyllie (13) found that in the recently extirpated human larynx, on a roll of brown paper being substituted for the thyro-arytænoid muscle of one side a similar effect is produced, and argues from that that the *role* of the muscles is a passive one, but by their presence the vocal pitch is lowered. It was the comparison of the results of the investigations of these last two mentioned observers that led me to look for a reason for this difference of opinion in the subject in the physical properties of the thyro-arytænoid muscles themselves, after having satisfied myself that the elastic vocal ligaments do not in themselves determine the pitch, but follow all movements of the muscular bands, *i. e.* the thyro-arytænoids, and so permit of the clean apposition of the lips of the glottis on phonation. It was evident that the thyro-arytænoids did not by their passive presence alone lower vocal pitch, neither

was the lowering of pitch concomitant with contracture the sole function of the muscles. The muscles must at one time cause the tone to rise, and at another time to fall in pitch. We have seen above that vocal pitch is determined by the present elasticity of the lips of the glottis, therefore the elasticity of the thyro-arytænoid muscles which are contained in them must also vary under different conditions. Now, anything that would throw light upon the causes that are capable of modifying this elasticity would throw light upon the rôle of these muscles in the determination of vocal pitch. By the manner in which these muscles are placed at the glottis the issuing air, using the true cords as levers, twists or rotates these muscles about their horizontal axes, thereby causing alternate closure and opening of the glottis. The rate of this oscillation will determine the vocal pitch. The muscles oscillate at a definite rate in virtue of their present elasticity. As the elasticity is increased the vibratory oscillation is relatively increased, and so the pitch rises, and *vice-versâ*. There is no reason to suppose that the thyro-arytænoid muscles differ from other striped muscles in their behaviour under the various conditions about to be noted. A glance at the property of elasticity of striped muscle would enable us to infer how the various conditions met with in the muscle at rest, in active contracture, in passive stretching, and in a combination of both the latter would affect the elasticity of the muscles, in virtue of which they are able to govern the vocal pitch when suitably placed for so doing. This view, therefore, of the property of elasticity of striped muscle, of which the thyro-arytæoids are examples, will indicate in what manner the elasticity of these muscles is actually modified for the purpose of forming and altering the vocal pitch.

If in the after-going description of the properties of elasticity of striped muscle one reads for "striped muscle" thyro-arytæoids, for "increased elasticity" raised vocal pitch, for "diminished elasticity" lowered vocal pitch, for "active muscle" contracture of the thyro-arytæoids, and for "weight" the contracture of the crico-thyroid muscles, it will soon be evident to what conclusions these facts lead us.

The elasticity of the living thyro-arytænoid may be determined by the pitch of its sonorous vibrations, or by means of the laryngostroscope.

The elasticity of passive muscle is small but complete, and its amount increases with its increased extension. In the living body the muscles are already stretched to a slight extent. The elasticity

of active muscle is diminished as compared with that of passive muscle, and the muscle is lengthened by the same weight to a greater extent than is resting muscle. It is also softer, its apparent increased hardness being only due to its tension. When fatigued its elasticity still further diminishes. The elasticity of active muscle was found by Kaiser (25) to depend upon its actual length at the time. It is least when the muscle has the same length in the active as in the passive state. If shortening occurs in a muscle stretched by a weight its elasticity is *diminished*; this reaches its minimum when the muscle reaches the same length as the passive unweighted muscle. If the active muscle contracts still further its elasticity increases. The elasticity of muscle may be measured by its rate of oscillation when twisted about its longitudinal axis. Applying this to the thyro-arytænoid muscles one finds that they have a dual *rôle* in the production of pitch. When passively stretched by the action of the crico-thyroid muscle its elasticity is increased, and thereby the vocal pitch is raised. When in a state of active contracture its elasticity is diminished, and the pitch falls.

The function of the muscle in the production of pitch and piano and forte notes lies between these two factors of passive extension and active contracture. These factors appear sufficient to account for all alterations in pitch and volume of tone taken in conjunction with the force of the expired air.

From the foregoing the author draws the following conclusions:

(1) That the limit of ordinary singing-pitch lies between two points: (a) When the thyro-arytænoid is stretched by the action of the crico-thyroid muscle to its limit of elasticity, being passively so stretched, *i.e.* the upper vocal limit; (b) when the thyro-arytænoid passes into a state of contracture, shortening being permitted by the diminished opposition of the crico-thyroid.

(2) That the resting thyro-arytænoid, in virtue of its tonicity, gives a pitch of note which will vary accordingly as the muscle is stretched while in that state.

(3) That other things being equal the effect of the contracture of the thyro-arytænoid is to lower vocal pitch.

(4) That the pitch being maintained the amplitude of the sonorous vibrations is increased by its contracture (Müller's "vocal compensation").

(5) That the timbre of a note produced by contracture of the muscle will differ from that produced by its passive stretching, and being richer in the lower harmonics.

(6) That the diminished elasticity of the fatigued muscles would account for "flatness" in a tired singer.

(7) That the pitch of a given note will depend upon the length of the muscle in contracture.

(8) That the lower limit of pitch is reached when the contracting muscle shortens to the same length, as in the state of rest.

(9) That any further shortening due to unopposed contracture of the muscle would cause sudden rise of vocal pitch were it not that the glottis becomes too widely open for this to occur.

(10) The pitch and timbre of notes produced where the stretching predominates over that of the contracture of the muscle would be correspondingly high and clear, *i. e.* as in the "head notes" of the soprano and *vice-versâ*, as in the "chest notes" of the bass voice.

In conclusion, it will be evident that if we take all the possible combinations of these two foregoing factors into consideration they are sufficient to account for any known pitch, timbre or "register" of the human voice.

REFERENCES.

- (1) "Works of Ambrose Parey," Paris, 1579.
- (2) *Memoires de l'Académie Royale des Sciences*, 1700, pp. 244, 285.
- (3) *Ibid.*, 1741, p. 409.
- (4) Müller's "Elements of Physiology," Baly, London, 1842.
- (5) "Elements of Physiology," Magendie, 1816.
- (6) "De Vocis Formatione," Berlin, 1835.
- (7) "Memoire sur la Voix Humaine," Magendie's "Physiology," 1825.
- (8) "Recherches sur le Mécanisme de la Voix Humaine," Paris, 1832.
- (9) *Transactions of Philosophical Society of Cambridge*, 1832.
- (10) *London and Edinburgh Philosophical Magazine*, 1836.
- (11) "Elements of Physiology."
- (12) "Observations Physiologique sur la Voix Humaine," Paris, 1861.
- (13) *Edinburgh Med. Journ.*, 1866.
- (14) "Sensations of Tone," London, 1885.
- (15) *Proc. Roy. Instit.*, 1891. Semon on the vocal registers.
- (16) *Brit. Med. Journ.*, 1895, vol. xi, p. 482.
- (17) *Munch. med. Wochenschr.*, 1895.
- (18) *Proc. Amer. Soc. Adv. Sc.*, 1882.
- (19) "Hygiene of Vocal Organs," Macmillan & Co., 1886.
- (20) "Étude Expér. sur la Phonation," Paris, 1886.
- (21) "Maladies de la Voix," Paris, 1902.
- (22) "Proc. Pan. Amer. Cong. of Med.," Washington, 1893.
- (23) Aiken, "The Voice," London, 1900.
- (24) "Maladies de la Voix Chantée," Poinat, Paris, 1907.
- (25) "Human Physiology," Landois, London, 1904.

CASES OF LARYNGOSTOMY.

BY DRs. SARGNON AND BARLATIER.

(Translated and abridged by MR. CHICHELE NOURSE.)

APPENDED to the paper by these authors upon the operation of laryngostomy, a translation of which has already appeared in the JOURNAL, was a series of twelve cases in which the operation was performed. This record, which is full of detail, serves to show the difficulties which may be encountered during the progress of such cases, and how they may be met.

Seven cases were cured, four were still under treatment, and one proved fatal. The following is a brief *resumé*, embodying some of the chief points of interest.

CASE 1.—A child, aged three and a half, with complete cicatricial obstruction of the larynx, following intubation and tracheotomy during diphtheria a year earlier.

Laryngostomy was performed by Dr. Rochet in November, 1905. The larynx was atrophied, and completely obliterated from the glottis to a centimetre from the cannula. As the tracheotomy was low a small piece of healthy tissue was left above the cannula. The cicatricial tissue was completely divided. At first dilatation was very difficult; in May, 1906, the upper part of the fissure closed, and was re-opened under general anaesthesia. At length the progress became rapid, and in January, 1907, the cannula and drain were given up. A few days later a suffocative attack was brought on by excitement; it was relieved by separating the lips of the wound. At this time the diameter of the larynx was ten or eleven millimetres. The organ was cylindrical; the lateral walls and even the anterior wall had become cartilaginous. The mucous membrane was pale, smooth and slightly cicatricial; it blended insensibly with the skin. The voice was weak but clear. The laryngeal fistula was one and a half centimetres in length.

An attack of measles in April, 1907, was accompanied by a red œdematous swelling of the larynx opposite the fistula, causing much dyspnoea. Sprays of water and of vaseline oil and instillations of oil of almonds were used to loosen the mucus. After this the patient was left without any further dilatation; her voice gradually improved. The cords re-appeared as two folds of mucous membrane just above the fissure, and approximated

readily. The calibre of the larynx had diminished, but there was no difficulty in breathing through the mouth and nose.

A plastic operation was performed in February, 1908; two days later much swelling of the laryngo-tracheal canal caused serious dyspnœa, and the low tracheotomy wound was re-opened. Finally the operation wound closed, but in view of the sudden attacks of dyspnœa a small plugged cannula was left in place.

CASE 2.—A child, aged seven, who had been unable to dispense with a tracheal cannula since an attack of croup two years before.

Laryngostomy was performed by Dr. Rabot. At the operation cicatricial stenosis in the cricoid region was found. The vertical incision was carried from the upper border of the thyroid cartilage downwards to a point about a centimetre above the cannula. Three days later this bridge of tissue above the cannula was suppressed as it was found to interfere with the adjustment of the drainage-tube. Dilatation proceeded rapidly and was well borne; at the end of six months the larynx admitted a tube of No. 29 calibre, and the child could breathe quite easily through the larynx. A plastic operation was then performed, but a small fistula remained in the neck through which air passed during coughing or other forced efforts at expiration.

Three other attempts were made to close the opening, twice under local anæsthesia and once under a general anæsthetic, but a minute fistula persisted. The child, however, seemed well, and could sing as well as speak.

CASE 3.—A boy, aged eleven, for whom tracheotomy had been performed during an attack of measles at the age of eight. The cannula could not be given up, and two years later treatment by dilatation with bougies and with a winged cannula was pursued for several months, but, partly owing to the intractability of the patient, the result was unsatisfactory.

Laryngostomy was performed by Dr. Rabot under local anæsthesia. As the tracheotomy was a low one the median incision included the thyroid isthmus, which bled freely.

In this case a crescent of cicatricial tissue existed at the level of the cricoid cartilage, on the posterior and lateral walls, leaving a sufficient breathing space in front. But, as in all the other cases, this space was encroached on by a tracheal spur, projecting obliquely downwards and backwards. As is also usual in such cases, the vocal cords were irregular and much swelled.

PLATE I.

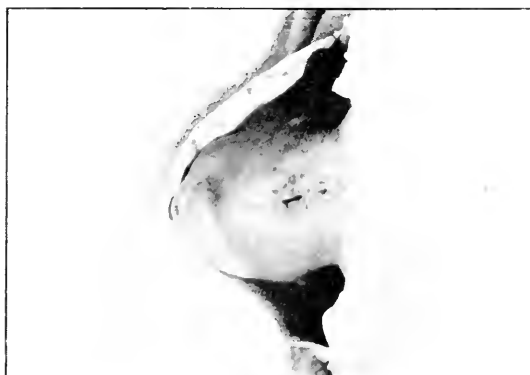


FIG. 1, CASE 1.—Photograph of the patient after dilatation. The fistula resulting from the low tracheotomy is seen below. Above is the aperture of the laryngostomy, and between the two openings is the bridge.



FIG. 2, CASE 2.—Photograph of the patient after dilatation. The fissure includes the old tracheotomy wound.



FIG. 3, CASE 2.—The same patient three months after the last plastic operation. Two very small openings remain, which allow mucus to exude during cough.

PLATE II.



FIG. 4, CASE 3.—Photograph of the patient immediately after dilatation.



FIG. 5, CASE 3.—The same patient ten months after dilatation. The fissure has become much smaller from above downwards. This was the only case in which almost complete spontaneous closure was observed.



FIG. 6, CASE 3.—The same patient several months after suture. A minute fistula still exists.

PLATE III.



FIG. 9, CASE 5.—The same patient with the canal opened by retractors, preparatory to dilatation.



FIG. 8, CASE 5.—The same patient with the cannula removed.



FIG. 7, CASE 5. Photograph taken three weeks after the operation.

The operation was followed by a slight attack of bronchitis, to which the patient was subject. After this had passed off dilatation progressed favourably. It was commenced with a No. 20 tube, and at the end of six weeks No. 36 could be introduced. Then an open drain was used for some days, but it was found that food passed down it and was rejected through the cannula. A shorter and smaller tube, plugged with gauze, was then employed. Once the gauze became loose and slipped into the trachea. After three and a half months of treatment the patient was cured, except for the existence of a fistula 12 mm. long. Six months later a plastic operation was performed, after which only an insignificant opening remained.

CASE 4.—A child, aged four. In January, 1907, an attack of membranous laryngitis necessitated intubation followed by a low tracheotomy. The membrane contained streptococci, staphylococci and diplococci, but no Klebs-Loeffler bacilli. After recovery the cannula was still required. The larynx was found to be occluded by cicatricial tissue. Laryngostomy was performed on March 1, and all went well until the sixth day, when the wound was found to be covered with a membranous exudation, spots of which extended into the trachea. Broncho-pneumonia developed, the membrane became more extensive, the patient coughed up membranous casts of the bronchi and large pieces of exudate, and death occurred on March 8.

CASE 5.—A child, aged six, was intubated on account of an urgent attack of dyspnoea due to laryngitis, and continued to require the tube after the attack had subsided. After sixteen days the tube, accidentally expelled, could not be replaced as usual, and tracheotomy was performed. All attempts to relinquish the cannula having failed, laryngostomy was performed twelve months later. There was almost total closure of the larynx at the level of the cricoid. The case progressed well. At one time sloughing became too marked, and the tube was replaced by a vaselined gauze plug.

Dilatation was commenced with a No. 16 tube, which was left undisturbed until the first dressing three days later. The following day the stage of sloughing began; it was so marked at the end of another day that the tube was replaced for twenty-four hours by a plug of gauze covered with vaseline. Dilatation was then continued by increasing the calibre of the tube each day.

After eight days sloughing had ceased, and granulation commenced. The drainage-tube then became displaced upwards, and a smaller one was substituted, and once it was displaced forwards. Dilatation was continued for five months; at the end of that time the patient could breathe well without either tube or cannula. The fistula gradually became smaller and was kept covered with a dressing so as to prevent the passage of air. The speaking and singing voice were a little hoarse at first, but gradually improved.

CASE 6.—A girl, aged eleven, who had been unable to breathe without a tube or a cannula since an attack of diphtheria at the age of six. Many fruitless attempts had been made to restore the parts to their natural condition; the child had been intubated one hundred and seventeen times, and had undergone four tracheotomies.

The cricoid cartilage was ossified, and the lumen of the larynx much narrowed at this point. The progress of the dilatation was rendered slow and difficult by this condition, but at length the stenosis yielded, and after five months of treatment the dilatation was considered sufficient and the tube removed. In a short time, however, the stenosis began to reappear, so that it became necessary to revert to the drainage-tube. Dilatation was then continued for three months, but the tube constantly became displaced, and scar tissue tended to recur.

The cicatricial tissue was then divided under local anæsthesia, and a fresh effort made to render dilatation effectual. The child was unmanageable, and the drainage-tube often slipped out of place. Then a longer tube was used with an aperture in the lower part, through which the tracheal cannula was passed (Fig. 4, p. 481). The threads from the tube were fastened to the outer cannula as usual. This plan seemed to answer well; the case is still under treatment.

CASE 7.—A child, aged six, who had worn a tracheal cannula for three years. Laryngostomy was performed by Dr. Vignard, who found the larynx completely occluded from below the cricoid to the level of the vocal cords. The cicatricial tissue was carefully divided and a No. 18 tube was inserted. In this case the sloughing process commenced two days after the operation, and soon became excessive. The tube was replaced by vaselined gauze for four days, and the sloughing diminished, but it did not completely cease for a month. The patient had slight fever at first, but no

PLATE IV.



FIG. 10, CASE 6.—The fistula is very large owing to the difficulty and long duration of the dilatation. The child, now aged 12, wears a No. 38 tube.



FIG. 11, CASE 7.—Photograph of the patient, taken during the operation immediately after the suturing.



FIG. 12, CASE 8.—Before the plastic operation. The thickening of the thyroid cartilage is due to the injury.



FIG. 13, CASE 10.—Laryngostomy for papillomata. The patient is still under treatment.

TO ILLUSTRATE DRS. SARGNON'S AND BARLATIER'S CASES OF LARYNGOSTOMY.

pulmonary symptoms. After two months of treatment the cannula and drainage-tube were left off for four days, but the cicatrix rapidly came back. The treatment was then resumed for two months more, but it was again interrupted for two days, owing to an ulceration in the trachea. After this, dilatation was continued for ten days more, and then finally discontinued. At this stage respiration was satisfactory, but speech was very defective. Six months later the child was in a good state of health, breathing well, but the voice was weak and badly produced. The length of the fissure was 24 mm.

CASE 8.—A man, aged twenty-one, in whom laryngeal stenosis had followed a suicidal wound in the throat a year before. Laryngostomy was performed by Drs. Delsaux and Sargnon in the usual way.

The cricoid and thyroid cartilages were ossified, and were divided by Monre's cutting forceps. The obstruction was caused by a thick cicatricial membrane in the subglottic region.

Treatment was pursued without incident, and at the end of two months the patient left the hospital still wearing the dilating tube, through which he is able to breathe, and the cannula, which is kept closed. After four months of dilatation the tube and cannula were discontinued, and the wound in the neck closed by adhesive plaster.

CASE 9.—A man, aged twenty-seven. During convalescence from typhoid fever two years previously inflammation of the larynx demanded tracheotomy, and for nearly a year fragments of necrosed cartilage continued to come away. Laryngostomy was performed by Drs. Sieur, Rouvillois and Sargnon.

The cricoid and thyroid cartilages were very hard and almost calcified; when they had been divided the interior of the larynx was seen to be much narrowed from the vocal cords to the cricoid cartilage. The lining was œdematous and thickened, but there was no cicatricial stenosis. There was shrivelling of the cartilages from chondritis and perichondritis; the cricoid was much narrowed. After the operation, dilatation, although rather painful, proceeded satisfactorily for five months, when a No. 45 tube was being worn. The patient was then discharged, and returned three months later for a plastic operation.

CASE 10.—A child who had undergone tracheotomy for papillomata of the larynx causing asphyxia. The stenosis persisted, and laryngo-fissure was performed, followed by application of the

galvano-cautery. The papillomata recurred, and the child continued to wear a cannula.

When laryngostomy was performed the cricoid proved to be ossified, and the cavity of the larynx as far down as the tracheal cannula was choked up with papillomata. These were removed with a curette, and a cicatricial band at the back was divided. Some weeks later more papillomata appeared and were removed. Dilatation proceeded rapidly in this case, but closure of the fissure was purposely delayed. The case is still under treatment.

CASE 11.—A child, aged eight, for whom intubation and then tracheotomy had been performed consequent on an attack of laryngeal diphtheria a year and a half before.

The cricoid was ossified, and the larynx was obstructed by numerous cicatricial bands. The anterior tracheal spur was well marked. A tube, No. 24, was inserted at the time of the operation. The stage of sloughing commenced two days later. During this time every spot of sphacelus was carefully touched with tampons soaked in oxygenated water. On the eleventh day the child returned home: from this date the wound progressed well, but applications of silver nitrate and the galvano-cautery were required to control exuberant granulations.

Six weeks from the date of the operation a tube, No. 30, was inserted; after that the gauze plug in the drainage-tube was omitted, and a fenestrated cannula used, so that respiration could take place through the larynx. A few days after, a mass of granulations in the laryngeal vestibule blocked the tube; after an unsuccessful attempt to destroy them with the cautery they were removed with a curved curette and a longer tube was employed.

Later another difficulty arose. A cicatricial narrowing of the trachea just above the curve of the cannula made its appearance. A long drainage-tube was then prepared with an anterior aperture in its lower part through which the tracheal cannula was passed. This formed an immovable apparatus which succeeded well.

At the time of reporting the case dilatation was complete; the child could breathe well and was waiting until it was prudent to perform a plastic operation.

CASE 12.—A child wearing a tracheotomy tube after an attack of diphtheria. Laryngostomy was performed quite recently. The larynx was atrophied and the cartilages softened. So far the case is doing well.

The calibre of the drainage-tube used in each case is given according to Charrière's gauge, in which each number corresponds to one third of a millimetre in diameter. Thus tube No. 30 is ten millimetres in diameter.

In this *résumé* the patient's age at the time of the operation is given where possible.

Quite recently an article from the pen of the same authors, entitled "Contributions to the Study of Laryngostomy," has appeared in *La Revue Hebdomadaire de Laryngologie, d'Otologie, et de Rhinologie* (October 31, 1908), which embodies the results of further experience.

In the main the operative technique remains the same, but some points of detail have required modification.

The frequency with which ossification of the cricoid cartilage is met with, even in young patients, is noted. The authors often make use of Moure's cutting forceps, which are very useful in such cases. They have altogether given up the plan of leaving a bridge of tissue above the cannula, and now advise that whatever was the level of the tracheotomy the laryngostomy incision should always be commenced at the tracheal orifice.

When the laryngeal occlusion is very marked it is best to divide the cricoid ring behind; plenty of room for dilatation is thus obtained, without adding to the gravity of the operation.

The sloughing stage ought to have come to an end by the seventh or eighth day after the operation. It can be controlled by using a tampon of gauze instead of a drainage-tube for two or three days. The sutures should be removed about the fifth day.

In troublesome cases, especially where the tube continually slips, Fouruier's method of passing the cannula through an anterior aperture in the lower part of the drainage-tube is warmly advocated. One advantage is the fixity of the apparatus; moreover it can be left in place for as many as six days, the outer dressing only being changed daily and the parts cleansed. By the use of this method dilatation becomes very rapid.

It is advisable to push the dilatation as far as possible, as there is always a little loss of calibre afterwards. For adults it should be carried up to No. 45, for adolescents to between 36 and 40, and for very young children to about 30.

Several months should be allowed to elapse after the cure of the stenosis before a plastic operation is undertaken. The authors advise that the interval should include at least one winter. They prefer Gluck's plastic operation.

AN EXAMINATION INTO THE CONDITION OF THE VESTIBULAR SUPPURATIVE

By NORMAN H. PIKE, M.B., B.S.LOND.-

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
1 A. G—, 53, M.	Congenital deformity of auricle and atresia of right meatus	The congenital deformity	R.E. \ominus ; L.E. $\frac{1}{2}$ m.	R.E. \ominus ; L.E. O.E.	→ L
2 J. K—, 15, M.	Congenital deformity of right auricle; absence of external meatus	The congenital deformity	L.E. normal; L.E. 8 m.	L.E. normal; R.E. 5 m.	→ L
3 A. F—, 50, M.	Deaf 18 years on right ear. Worked from 1887--97 in an iron foundry	The noise and vibration at his work	L.E. 6 m.; R.E. 1 m.	L.E. 3 m.; R.E. $\frac{1}{2}$ m.	↔
4 F. B—, 20, M.	3 years deaf. Worked in a forge	The noise at his work	R.E. 1 m.; L.E. 7 m.	R.E. \ominus ; L.E. $1\frac{1}{2}$ m.	→ L.
5 Z—, 47, M. B.	Worked for a long time at a forge. Bad hearing for a long time; 16 months ago trauma on the head (blow), was unconscious; since has had little vertigo, tinnitus, and headache; 3 weeks ago suddenly strong vertigo for 14 days; vomiting; very nervous	Occupational deafness and then trauma; no cause known for last attack	R.E. 1 m.; L.E. 6 m.	R.E. \ominus ; L.E. 2 m.	—
6 A. L—, 17, F.	Smallpox when a few months old. Always heard badly. Went to Volks-school	? Smallpox	R.E. $\frac{1}{2}$ m.; L.E. $\frac{2}{3}$ m.	R.E. O.E.; L.E. O.E.	↔
7 P. W—, 19, F.	6 years ago diphtheria; sometimes vertigo	Diphtheria	R.E. 7 m.; L.E. $\frac{1}{2}$ m.	R.E. 7 m.; L.E. O.E.	→ R.
8 R. K—, 17, M.	February 22, 1908.—3 weeks ago had an external otitis. For 2 weeks has had vertigo and deafness on the left ear, also headache. A paracentesis was made, but middle ear was apparently normal. No secretion. Drums normal. February 25, 1908.—Has 3 or 4 attacks of vertigo daily. He tends to fall to the left; objects move to the right. Does not vomit. February 29, 1908.—Still has vertigo attacks. Now hears absolutely nothing by the left ear; also nothing through bone conduction	? Influenza, otitis externa	Feb. 22, '08: R.E. normal; L.E. 1 m.	Feb. 22, '08: R.E. normal; L.E. \ominus Feb. 29, '08: L.E. \ominus	→ R.

APPARATUS IN A SERIES OF CASES OF DEAFNESS OF NON-ORIGIN.

(Continued from page 607.)

Rinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
—	Normal	+	+	10 × R. = 1½ balloons of cold water to L. = 35"; no vertigo	1½ balloons of cold water to R.E. gave a weak reaction	None	+	Left drum, chronic catarrh. Has no vertigo.
R.E. — L.E. +	Normal	R. ⊖ L. +	R. + short-ened; L. +	10 × L. = 35"; 10 × R. = 35"; no vertigo	—	None	—	Left drum normal. Has no vertigo. With air and water to L.E. only heard conversational voice on the ear.
L.E. + R.E. —	Shortened	L.E. + R.E. + short-ened	L.E. + R.E. + much short-ened	10 × R. = 25"; slight vertigo; 10 × L. = 20"; strong vertigo	1 balloon R.E. slight nystagmus, with slight vertigo; ½ balloon to L.E., strong nystagmus, vertigo and vomiting	Slight	L.E. + R.E. +, but not so irritable as left	Both drums normal.
R.E. — L.E. +	R.E. shortened	R.E. —	R.E. —	10 × L. = 32"; 10 × R. = 34"	½ balloon cold water; normal reaction; no vertigo	—	+	Drums normal.
+	Shortened	Short-ened	Short-ened	10 × L. = 12"; 10 × R. = 25"; head forward, 10 × L. = 12"	1 balloon R.E. minimal reaction; ½ balloon L.E. strong	Little to left	R.E. much diminished	Is neurasthenic.
—	Shortened	—	+	10 × R. = 40"; 10 × L. = 30"; no vertigo	Strong reaction both ears, ¼ balloon	None	+	Drums slightly retracted; never had vertigo.
—	Shortened	—	Short-ened	10 × L. = 20" strong; 10 × R. = 22" weak	½ balloon R.E. strong; 1 balloon L.E., weak	To both sides	+ R.E. more so than left	L.E. deaf; proved with air and water syringing. No nervous disease.
R.E. + L.E. A.B.	R.E. slightly shortened; L.E. much shortened L.E., no conduction through bone	R.E. + L.E. —	R.E. + L.E. —	Feb. 22, '08: ½ balloon L.E., strong vertigo; 10 × R. = 15"; 10 × L. = 10"; Feb. 29, '08: 10 × R. = 20"; 10 × L. = 15"	Feb. 22, '08: 1 balloon L.E., strong vertigo; head backward Feb. 29, 1908: Still strong caloric reaction by the left ear	None	+	Air and water syringing proved hearing on left ear.
							+	With air and water syringing hears nothing.

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
9 J. K—, 35, M. B.	January 17, 1908.—Vertigo attacks, tinnitus, facial paralysis 6 or 8 days. February 14, 1908.—Healed	Rheumatism	R. normal; L.	—	—
10 M. S—, 27, F.	Three years' history, at times slight vertigo. No vomiting. Noises.	Oto-sclerosis	R.E. $1\frac{1}{2}$ m.; L.E. $\frac{1}{2}$ m.	R.E. $\frac{1}{4}$ m.; L.E. \ominus	→ R.
11 A. D—, 36, M.	Three years deaf. Right ear the worst. No history.	Lesion of internal ear; oto-sclerosis	R.E. O.E.; L.E. $\frac{1}{2}$ m.	R.E. \ominus ; L.E. O.E.	→ L.
12 J. C—, 34, M.	Has had lupus of the nose, for which a plastic operation was done. No history for deafness	Lesion of internal ear; oto-sclerosis	R.E. O.E.; L.E. 1 m.	R.E. \ominus ; L.E. $\frac{1}{2}$ m.	↔
13 F. M—, 57, F.	Has not heard for 5 or 6 years	Oto-sclerosis; lesion of internal ear	R.E. \ominus ; L.E. $\frac{1}{4}$ m.	R.E. \ominus ; L.E. O.E.	→ L.
14 L. M—, 28, M.	Two years ago deafness began, slow onset; been very deaf for one year; tinnitus. Attacks of vertigo for three quarters of a year, sometimes strong, lasting about half an hour	Oto-sclerosis	R.E. O.E.; L.E. O.E.	R.E. \ominus ; L.E. \ominus	→ R.
15 A. H—, 36, F.	Four years ago. Has taken much antipyrine for one year for headache to which she attributes the deafness. Has been deaf for 3 years. No vertigo. No tinnitus	? Antipyrine; ? oto-sclerosis	R.E. $\frac{1}{4}$ m.; L.E. $\frac{1}{4}$ m.	R.E. \ominus ; L.E. \ominus	—
16 S. F—, M. B.	Two years ago vertigo and vomiting about once a week for the first six months, then nothing for three months, and then again	Lesion of internal ear; oto-sclerosis	R.E. 7 m.; L.E. 6 m.	R.E. 6 m.; L.E. 10 cm.	→ L.
17 A. v. T—, 34, F.	Six years ago influenza, since when the hearing has steadily got worse. Married; no children. Never vertigo or tinnitus	? Influenza; ? oto-sclerosis; lesion of internal ear	R.E. O.E.; L.E. $\frac{1}{4}$ m.	R.E. \ominus ; L.E. \ominus	↔

Rinne.	Bone-conduction.	C _p .	C _n .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
—	—	—	—	—	Normal reaction	← bending backward, strong	+	After 11 days facial paralysis healed. No vertigo. No nystagmus by bending.
—	R.E. normal; L.E. shortened	L.E. + shortened	R.E. + shortened	10 × R. = 50"; 10 × L. = 45"; no vertigo	1/4 balloon R.E., strong vertigo and sickness; 1/2 balloon L.E., strong	—	+	Drums normal.
— both	Little shortened	—	Much shortened	10 × R. = 10"; 10 × L. = 25"; no vertigo	R.E. 3/4 balloon, strong; L.E. 3/4 balloon, strong	Slight	+	Drums fairly normal, 2 at times vertigo.
—	R.E. shortened; L.E. normal	—	Much shortened	10 × R. = 10"; 10 × L. = 15"	R.E. 1/2 balloon, normal; L.E. 1/2 balloon, normal	—	+	Drums normal, once or twice a day has attacks of vertigo lasting a short time.
—	Shortened	—	R.E. ⊖; L.E. + shortened	10 × R. = 15"; 10 × L. = 20"	3/4 balloon R.E., normal	—	+	Has attacks of vertigo. Drums practically normal.
—	R.E. little lengthened; L.E. normal	—	Very much shortened	10 × R. = 25"; 10 × L. = 17"	Cold R.E., strong; cold L.E., strong	None	+	Drums normal.
—	Lengthened	—	Shortened	Not taken because of nausea	1/4 balloon R., strong; 1/2 balloon L., strong	None	+	Drums normal.
R.E. +; L.E. —	Normal	R.E. + L.E. —	R.E. + L.E. —	—	—	During attack changes ← and → and then ← and → and with every movement of head is stronger	+	The caloric reaction was not taken because patient so easily vomited, but undoubtedly was + because of the strong spontaneous nystagmus which changed during the attack.
—	R.E. little shortened; L.E. normal	R.E. ⊖; L.E. shortened	R.E. very much shortened; L.E. shortened	10 × L. = 30"; 10 × R. = 28"	1/2 balloon R.E., strong	—	+	Drums are normal. Is nervous. The R.E. has only been deaf for 2 years.

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
18 B. T—, 30, M.	History of tinnitus. Headache and nausea during attacks for half a year	Oto-sclerosis	R.E. normal; L.E. $\frac{1}{2}$ m.	R.E. 5 m.; L.E. O.E.	→ L.
19 D. W—, 57, F.	Hard hearing and vertigo for years; has still very strong attacks of vertigo. Always tinnitus in both ears; during the attack stronger	Oto-sclerosis; lesion of internal ear	Bad hearing both ears, loud voice only	R.E. \ominus ; L.E. \ominus	←→
20 C. L—, 58, F.	Bad hearing for 3 years on left ear; strong noises for 2 years. For 8 years has had attacks of vertigo lasting about 5 minutes; now not so often or strong. No vomiting	Oto-sclerosis	R.E. $\frac{1}{2}$ m.; L.E. 4 m.	R.E. O.E.; L.E. $1\frac{1}{2}$ m.	→ R.
21 C. G—, 30, M.	Has been deaf for 4 years; knows of no cause of the deafness. Had noises in the ears for $1\frac{1}{2}$ years; worse in bad weather. Attacks of vertigo for the last year lasting half hour; worse in bed	Oto-sclerosis	R.E. $\frac{1}{2}$ m.; L.E. 1 m.	R.E. O.E.; L.E. O.E.	←→
22 A. D—, 50, F.	Has been deaf for 2 years. Strong tinnitus, sometimes vertigo, when in bed	Oto-sclerosis	R.E. 1 m.; L.E. 1 m.	R.E. O.E.; L.E. O.E.	—
23 M. G—, 28, F.	For 1 year was a little deaf and then for 1 year very deaf. Has headache, but no vertigo	Oto-sclerosis	R.E. $\frac{1}{2}$ m.; L.E. O.E.	R.E. O.E.; L.E. \ominus	→ R.
24 A. W—, 25, F.	Has been deaf for 1 year. Knows of no cause. Has headache, tinnitus, and vertigo	Oto-sclerosis; lesion of internal ear	R.E. 10 cm. L.E. 10 cm.	R.E. \ominus ; L.E. \ominus	—
25 B—, 51, M. B.	Fourteen days ago fall on head. Bleeding from left ear. Unconscious 18 hours. Now deaf left ear; bad hearing right ear. Traumatic neurosis	Trauma; fractured base	R.E. 5 m.; L.E. 1 m.	R.E. O.E.; L.E. \ominus	—
26 A. P—, 41, M. B.	Four months ago trauma on left ear. Unconscious bleeding from nose and mouth. Vertigo for 14 days. Deafness on left ear. Has arterio-sclerosis	Trauma; fractured base	R.E. norm.; L.E. 1 m.	R.E. norm.; L.E. O.E.	→ R.

Rinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
-	Lengthened	⊖	Shortened	10 × R. = 42"; 10 × L. = 48"; head forward, 10 × R. = 20"; 10 × L. = 27"	Strong reaction	None	+	Normal drums. Has worked in a forge. Is neurasthenic.
-	Shortened	⊖	Shortened	10 × R. = 26"; 10 × L. = 20"	Typical reaction both sides	None; during attacks strong	+	Drums and Eustachian tubes normal.
R.E. -	Normal	R.E. ⊖; L.E. little shortened	R.E. much shortened; L.E. little shortened	10 × R. = 30"; 10 × L. = 25"; vertigo; not a strong movement	1 balloon R.E. very slight reaction of short duration; 1 balloon L.E., good reaction; slight vertigo	None	+, but left vestibule decidedly more so than right	Drums normal; the Eustachian tubes free; conversational voice not improved after bougie.
-	Normal	-	Shortened	10 × L. = 27"; 10 × R. = 23"	1/4 balloon L.E., strong; 1/4 balloon R.E., strong; vertigo and vomiting	None	+	Drums normal.
-	Lengthened	Shortened	Shortened	10 × R. = 25"; 10 × L. = 25"	1/2 balloon L.E., strong; vertigo	None	+	Drums normal; after massage whispered voice heard 20 cm.
-	Little lengthened	⊖	R.E. little shortened; L.E. much shortened	10 × R. = 27"; 10 × L. = 24"	1/2 balloon R.E., strong vertigo; 1/2 balloon L.E., strong vertigo	Slight	+	Drums normal.
-	Shortened	⊖	Shortened	10 × R. = 0"; 10 × L. = 20"; very slight movement	1/2 balloon R.E., slight; 1 1/2 balloon L.E.; minimal reaction	None	R. +; L. - very much diminished	Drums normal, tubes free
R.E. + L.E. +	Shortened more on left	R.E. + L.E. ⊖	R.E. + L.E. shortened	Feb. 9, '07: 10 × R. = 15"; 10 × L. = 25"; Feb. 16, '07: 10 × R. = 15"; 10 × L. = 15"	1 balloon L.E., nearly no reaction; 1/2 balloon R.E., strong	Little to both sides	L.E. practically -; R.E. +	Has mental dullness from trauma
R.E. + L.E. -	Shortened	R.E. + L.E. ⊖	R.E. + L.E. ⊖	-	1 balloon L.E., no reaction; 1 balloon R.E., smaller reaction than normal	Little to both sides	L.E. - R.E. + but diminished	-

	Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
27 B.	K—, 40, M.	Five weeks ago fall on head; bad hearing since. Tinnitus both sides. Attacks of vertigo not strong	Trauma	R.E. $\frac{1}{2}$ m.; L.E. $\frac{1}{2}$ m.	R.E. O.E.; L.E. O.E.	←→
28 B.	L—, 44, M.	Fell on back of head 6 weeks ago; since deaf on right ear; was not unconscious. Traumatic neurosis. Tinnitus right ear. Headache; vertigo attacks; nausea	Trauma	R.E. $\frac{3}{4}$ m.; L.E. $\frac{1}{2}$ m.	R.E. ⊖; L.E. 1 m.	→ L.
29 B.	Y—, 42, M.	Had electric current through him 14 days ago; since bad hearing. Tinnitus and vertigo; also traumatic neurosis	Trauma; electric current	R.E. 7 m.; L.E. $\frac{3}{4}$ m.	R.E. 2 m.; L.E. ⊖	→ R.
30	R. H—, 26, F.	Two years ago fell on back of head; unconscious $\frac{1}{2}$ hour, then vomited. Headache for 8 days, then attacks of vertigo for 14 days. Did not lay in bed. Since has been deaf on right ear. No vertigo now	Trauma	R.E. 10cm.; L.E. norm.	R.E. ⊖; L.E. norm.	←→
31 B.	B—, 25, M.	July 6, 1907. — Trauma; for 3 months strong vertigo, now has none. Deaf on right ear	Trauma; fracture of base	R.E. 1 m.; L.E. norm.	R.E. O.E.; L.E. norm.	←→
32 B.	N—, 21, M.	Trauma November 2, 1907; 5 days unconscious after strong vertigo, better for 2 months. Heard nothing at first, now very little on the left ear	Fracture of base of skull	March 8, 1908; R.E. norm.; L.E. $\frac{3}{4}$ m.	R.E. norm.; L.E. ⊖	→ R.
33 B.	J. W—, 49, M.	Three weeks ago had an accident and fell on his head, since has been deaf on the left side. Has slight vertigo 2—3 times a day lasting about $\frac{1}{4}$ hour	Trauma	R.E. norm.; L.E. $\frac{1}{4}$ m.	R.E. norm.; L.E. ⊖	→ L.
34 B.	J. D—, 21, M. (Politzer-info)	Five months ago left ear hearing bad, 6 weeks ago loss of hearing, left ear and vertigo, for 5 weeks aphonic, 3 weeks ear aesthesia. Left side of head, double vision, headache, vomiting	Tumour left side of base of skull, post. fossa	R.E. norm.; L.E. $\frac{1}{4}$ m.	R.E. 5 m.; L.E. ⊖	→ R.
35 B.	C—, 25, M. (Barany and Fuchs)	Two years ago attack of vertigo, deafness of the right side for 8 days, bad vision. — March 10, 1906	Tumour of the cerebellar pontine angle	R.E. $1\frac{1}{2}$ m.; L.E. norm.	R.E. 10cm.; L.E. 6 m.	←→

Kinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
+	Shortened	Little shortened	Shortened	10 × R. = 50"; 10 × L. = 45"; head forward, 10 × R. = 20"; 10 × L. = 25"	Not taken	Little to both sides	+	—
+	Shortened, especially R.	Shortened	Shortened	10 × R. = 48"; 10 × L. = 45". Much vertigo and nausea	Not examined	None	+	Hemi-hypæsthesia on right side
R.E. + L.E. +	Shortened, more left	L.E. shortened	R.E. shortened	10 × R. = 65"; 10 × L. = 53"	Not examined	None	+	Drums normal
R.E. - L.E. +	L.E. much shortened	L.E. ⊖	L.E. very much shortened	10 × R. = 25"; 10 × L. = 22"	Cold water; 1 balloon R.E., no vertigo; no reaction. Cold water; 1 balloon L.E.; strong vertigo	None	L.E. + R.E. -	Drums normal; air and water syringing, hears loud sounds, but not understanding words; Romberg's tests good
R.E. -	R.E. shortened	R.E. shortened	R.E. shortened	10 × R. = 20"; 10 × L. = 20"	1 balloon R.E., no reaction; 1 balloon L.E., weak reaction	Little (→) also behind spectacles	R.E. - L.E. impaired	Air and water syringing; absolute deafness R.E.
L.E. -	L.E. shortened	L.E. shortened	L.E. shortened	Not taken	1 balloon L.E., very little reaction. 1/2 balloon R.E., typical reaction	Little	R.E. +, L.E. very much diminished	Hears a little, air and water syringing.
R.E. + L.E. -	R.E. shortened, L.E. much shortened	L.E. much shortened	L.E. much shortened	10 × R. = 30"; 10 × L. = 20"; strong vertigo	1/4 balloon R.E., strong vertigo. 1/4 balloon L., strong vertigo	None	+	Air and water syringing, hears loud shouting links. Drums normal.
R.E. + L.E. -	Shortened	L.E. ⊖	L.E. ⊖	—	R.E. cold, norm., and hot. L.E. cold and hot, no reaction	Strong (→) in every direction of look. Attack of vertigo in which nys. → r is stronger	R.E. +, L.E. -	Paralysis of 5th, 6th, 7th, 8th, and 11th and 12th nerves on the left side. O.D. normal. Ataxia of left extremities.
R.E. - L.E. +	Shortened	R.E. ⊖	R.E. ⊖	—	R.E. cold, no reaction. L.E. cold, normal	Strong horizontal to right, less to the left on shaking the head	R.E. -, L.E. +	O.D. choked. Paralysis of 5th, 7th, 8th, and 12th nerves—right side.

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
36 R—, 25, F. B.	<i>April</i> 30, 1906.—For 1½ years strong headache and vertigo, for 4 months blindness. Deaf right ear for a long time, no vomiting	Tumour of right cerebellar pontine angle, or cerebellum	R.E. 1½ m.; L.E. norm.	R.E. O.E.; L.E. norm.	→L.
37 G—, 50, M. B.	<i>October</i> 14, 1906.—No history.	Acoustic tumour (verified <i>post mortem</i>)	R.E. ⊖; L.E. 3 m.	R.E. ⊖; L.E. ¾ m.	—
38 F. H—, 42, F. B.	<i>November</i> 26, 1906.—Deaf right ear	Tumour of the bases in the post. fossa (verified <i>post mortem</i>)	R.E. 1 m.; L.E. norm.	R.E. O.E.; L.E. norm.	→L.
39 R—, 38, F. B.	<i>January</i> 6, 1907.—Deafness right ear; vertigo	Tumour of right cerebellar pontine angle	R.E. ¾ m.; L.E. normal	R.E. O.E.; L.E. normal	→L.
40 M. B—, 36, F. B.	One year bad hearing; vertigo for half year. Blindness. Headache right side. Vomiting. Tinnitus	Tumour of right cerebellar Pontine (verified <i>post mortem</i>)	R.E. ¾ m.; L.E. 7 m.	R.E. ⊖; L.E. 4 m.	→L.
41 M—, 35, M. B.	<i>October</i> 20, 1907.—History unimportant. No lucas	Acoustic tumour at left side	R.E. normal; L.E. 1 m.	R.E. normal; L.E. O.E.	→R.
42 N. N—, , F. B.	<i>October</i> 24, 1907	Acoustic tumour (right)	R.E. deaf; L.E. normal	—	—
43 Z—, 52, F.	<i>January</i> 24, 1908	Acoustic tumour (right)	R.E. deaf; L.E. normal	—	—
44 H—, 47, M. B.	History of deafness for some time. For some months has had strong attacks of vertigo; never vomits during attacks	Arterio-sclerosis; noises at work	R.E. 3 m.; L.E. 2 m.	R.E. O.E.; L.E. ⊖	—

Rinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
R.E. -	R. shortened	R.E. ⊖	R.E. ⊖	—	R.E. no reaction. L.E. cold, normal	To the right rotatory and slow. To the left quicker	R.E. - , L.E. +	Spastic paresis of lower extremities, choked discs, total blindness.
L.E. +	L. shortened	—	—	—	Cold R.E., no reaction. Cold L.E., normal	Strong \curvearrowright_r , weaker \curvearrowleft_l	R.E. - , L.E. +	O.D. choked. Glaucoma R.E. Paresis of associated movements of eyes to right. Paresis of right trigeminus.
R.E. -	Shortened	R.E. ⊖	R.E. ⊖	—	Cold R.E., no reaction. Cold L.E., normal	To both sides. Deviation of eyes changing between right and left	R.E. - , L.E. +	Paresis of associated eye movements to both sides, changing. O.D. choked, blindness. Right-sided hemiparesis and ataxia. Paresis of right 5th, 7th, and 12th nerves.
—	—	—	—	—	Cold R.E., no reaction; cold L.E., normal	\curvearrowright_r stronger than \curvearrowleft_l	R.E. - L.E. +	Hypo-aesthesia of cornea; right O.D. choked.
R.E. -	Shortened	—	—	—	Cold R.E., no reaction; cold L.E., normal	\curvearrowright_r and \curvearrowleft_l both strong, attack of \curvearrowright_r during an attack of vertigo	R.E. - L.E. +	Blindness; choked disc; abducens paresis both sides; 5th, 7th, 12th right nerves, paresis.
—	—	Shortened	Shortened	—	Cold R.E., normal; cold L.E., no reaction	\curvearrowleft_l also behind spectacles	R.E. + L.E. -	Air and water syringing, hears nothing left. Paresis 5th nerve. O.D. choked.
—	—	—	—	—	Cold R.E., no reaction; cold L.E., normal	\curvearrowright_r	R.E. - L.E. +	Right areflexia of cornea. O.D. choked.
—	—	—	—	—	Cold R.E., no reaction; cold L.E., normal	\curvearrowright_r stronger than \curvearrowleft_l	R.E. - L.E. +	Areflexia of right cornea; spastic lower extremities, ankle clonus; air and water syringing, also deaf.
+	Shortened	Shortened	Shortened	10 × R. = 27"; 10 × L. = 35"	Not taken	None	+	The attacks of vertigo were stronger than any attack produced by experiment.

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
45 M—, 36, M. B.	For last 2 years bad hearing left ear. For last 8 days had attacks of vertigo lasting 1 minute. No nausea. No tinnitus. Has arterio-sclerosis	? Arterio-sclerosis	R.E. normal; L.E. $\frac{3}{4}$ m.	R.E. normal; L.E. O.E.	→ L.
46 K—, 58, F. B.	Since 2 years bad hearing, vertigo and tinnitus	? Arterio-sclerosis	R.E. 1 m.; L.E. 7 m.	R.E. O.E.; L.E. 4 m.	←→
47 L. H—, 27, F. B.	<i>March 4, 1907.</i> —Lues 2 years ago. Has no nervous disease. Tinnitus on the left side. For the last 3 months has vertigo and vomiting. For the last 8 days enormous vertigo. <i>February 27, 1908.</i> —For a year now no tinnitus, no vertigo. Since yesterday tinnitus and vertigo, again lasting 3–4 minutes. No nausea	Acquired lues	—	R.E. 6 m.; L.E. 6 m. R.E. 6 m.; L.E. 6 m.	→ L.
48 M. K—, 51, F. B.	Nine years weakness, headache, and vertigo; 4 months laid in bed; for last 4 weeks vertigo and vomiting, tinnitus and bad vision	Gumma cerebelli	<i>Oct. 3, '07:</i> R.E. 6 m.; L.E. $\frac{1}{2}$ m. <i>Nov. 14, '07:</i> R.E. 2 m.; L.E. O.E. <i>Dec. 20, '07:</i> R.E. 6 m.; L.E. 4 m.	R.E. 1 m.; L.E. ⊖ R.E. 1 m.; L.E. ⊕ R.E. $\frac{1}{2}$ m.; L.E. $\frac{1}{2}$ m.	←→
49 R. T—, 36, M. B.	Acquired lues, paralysis of right facial, left oculo-motor	Acquired lues	R.E. 1 m.; L.E. normal	R.E. O.E.; L.E. normal	→ L.
50 T. S—, 38, F.	Definite history of lues 4–5 years. Has heard badly 1 year	Acquired lues	R.E. 7 m.; L.E. 6 m.	R.E. 3 $\frac{1}{2}$ m.; L.E. 3 m.	→ L.
51 E. F—, 43, M. B.	History of lues; for 5–6 years bad hearing, worse for last year; loud noises for 2 years; no vertigo	Acquired lues	R.E. $\frac{1}{2}$ m.; L.E. 4 m.	R.E. O.E.; L.E. ⊖	—

Rinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
L.E. - R.E. +	Shortened	Short- ened	Short- ened	10 × R. = 40"; 10 × L. = 18"	Not taken	Changes; sometimes none, other times $\begin{smallmatrix} l \\ \nearrow \end{smallmatrix}$ stronger than $\begin{smallmatrix} r \\ \nwarrow \end{smallmatrix}$	+	—
+	Shortened more on right	Much short- ened R.E.	Much short- ened R.E.	10 × R. = 36"; 10 × L. = 13"	1 balloon R.E., no reaction; $\frac{1}{2}$ balloon L.E., strong	To the left	R.E. - L.E. +	—
+	Normal	+	+	10 × R. = 20" slight movement; 10 × L. = 28" strong movement; no nausea; 10 × R. head 90° forward, nearly no reaction; 10 × L. head 90° forward strong. Feb. 27, '08: 10 × R. = 30"; 10 × L. = 35"	R.E. little re- action; L.E. cold, nearly no reaction. Feb. 27, '08: 1 balloon L.E., slight; $\frac{1}{2}$ balloon R.E., strong	Mar. 4, '07: Strong $\begin{smallmatrix} l \\ \nearrow \end{smallmatrix}$ Feb. 27, '08: To both sides, more to the left	Mar. 4, '07: L.E. nearly no irri- tability. Feb. 27, '08: Irrita- bility not so dimin- ished as above	Left side galvanic reaction normal.
R.E. +; L.E. -	R.E. little shortened; L.E. much shortened;	R.E. +; L.E. -	R.E. +; L.E. -	—	Oct. 3, '07: L.E. $\frac{1}{4}$ balloon; enormous re- action; R.E. $\frac{1}{4}$ balloon, enormous. Nov. 14, '07: Same as above.	Strong $\begin{smallmatrix} l \\ \nearrow \end{smallmatrix}$	+	This case was much improved. Had atrophic neuritis of optic nerve. Has tremors of the whole body, gait very uncertain, vision also be- cause much better as also the papill- itis.
R.E. +; L.E. +	shortened; both	shortened;	short- ened	—	Dec. 20, '07: Same	Same	+	Laetic meningi- tits of the base.
R.E. -	R.E. shortened	R.E. ⊖	R.E. short- ened	—	1 balloon R.E., no reaction; 1 balloon L.E., normal	Spontane- ous nystag- mus $\begin{smallmatrix} l \\ \nearrow \end{smallmatrix}$	R.E. - L.E. +	Drums normal. No vomiting. Slight vertigo at times. Noises in both ears, more in left.
+	Shortened	+	+	10 × R. = 25"; 10 × L. = 30". No vertigo	$\frac{1}{4}$ balloon R.E., normal, ver- tigo; $\frac{1}{4}$ balloon L.E., normal, vertigo	None	+	After bougie and catheter heard a little better left side. Tube is narrowed.
R.E. +; L.E. -	Shortened	R.E. +; L.E. ⊖	R.E. sh.; L.E. much sh.	10 × R. = 40"; 10 × L. = 10"	—	None	+	—

	Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
52	B. K—, 14, F.	History of congenital lues. Heard up to 10 years, then became deaf and has not heard since	Congenital lues	R.E. very loud words; L.E. \ominus	R.E. \ominus ; L.E. \ominus	—
53	M. P—, 16, F.	Case of congenital lues. Always been deaf	Congenital lues	R.E. O.E.; L.E. $\frac{1}{4}$ m.	R.E. \ominus ; L.E. \ominus	\longleftrightarrow
54	F. H—, 12, M.	Case of congenital lues. Had an attack of vertigo lasting 1 day 2 years ago; now no vertigo or vomiting. Has strong ocular nystagmus	Congenital lues	R.E. 1 m.; L.E. 1 m.	R.E. $\frac{1}{4}$ m.; L.E. $\frac{1}{4}$ m.	\rightarrow L.
55	A. S—, 23, M. (Dr. Alice Mac- kenzie, "Zur Klinik der galvanischen akustikus re- aktion," <i>Klin. Wochenschr.</i> , 1908, No. 11, p. 360)	Three years after scarlet fever total deafness; also evidence of congenital lues. Sometimes has vertigo; no turning, only uncertainty of gait	Scarlet fever associated with congenital lues	R.E. \ominus ; L.E. \ominus	R.E. \ominus ; L.E. \ominus	—
56	M. P—, 13, F.	For 2 years has not heard with right ear; before that heard quite well. For 3 months has not heard with the left ear. Went to school from years 6—8, then became ill	Congenital lues	R.E. \ominus ; L.E. very loud words O.E.	R.E. \ominus ; L.E. \ominus	\rightarrow L.
57	A. S—, 19, F. B.	Always hard hearing; since 2 months hearing very bad, blindness, ozana, very dull mentally	Congenital lues	R.E. 10 cm.; L.E. null.	R.E. \ominus ; L.E. \ominus	—
58	L. M—, 17, M.	When 5 years had measles, which was followed by a corneal ulcer and iritis. Went to school, but from 12 to 16 slight deafness. Since 16 hears nothing. Mother had six children (three living) and one miscarriage	? Congenital lues	R.E. very loud words; L.E. \ominus	R.E. \ominus ; L.E. \ominus	—
59	P—, 47, M. B.	For the last 2 years has had attacks of vertigo lasting 2-3 hours; with vomiting. Has been deaf on right ear for 3 years	Lesion in ear	R.E. O.E.; L.E. 7 m.	R.E. \ominus ; L.E. $1\frac{1}{2}$ m.	\rightarrow L.

Rinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
—	Much shortened	Shortened	R.E. much shortened; L.E. ⊖	10 × R. = 0"; 10 × L. = 0"	1 balloon R.E., no reaction; 1 balloon L.E., no reaction	None	—	—
—	Shortened	R.E. — L.E. +	+ shortened	<i>Feb. 19, '08:</i> 10 × R. = 0"; 10 × L. = 0" <i>Feb. 21, '08:</i> 20 × R. = 0"; 20 × L. = 0"; no vertigo.	<i>Feb. 19, 1908:</i> 1 balloon both ears, no reaction; <i>Feb. 21, 1908:</i> 1 balloon both ears, no reaction	Slight spontaneous nystagmus on looking to the left — not constant	—	With air and water syringing heard loud voice on R.E. Has no vertigo or vomiting. Can do all Romberg's tests well. Drums normal. No galvanic reaction with 15 milliamperé.
+	Shortened	+	Little shortened	Definite turning reaction to both sides, on looking to ? time because of ocular nystagmus	1 balloon R.E., definite reaction (<i>i.e.</i> on looking to R. there was L.); 1 balloon L.E., no reaction	Strong ocular nystagmus	— for L.E.	With air and water syringing could hear with both ears.
Not heard	—	—	—	10 × R. = 0"; 10 × L. = 0"	No caloric reaction	Little to both sides	—	Drums retracted, otherwise normal. Uncertain gait.
—	R.E. much shortened; L.E. shortened	R.E. ⊖ L.E. shortened	R.E. ⊖ L.E. ⊖	10 × R. = 0"; 10 × L. = 0"	1 balloon cold both ears gave a minimal reaction on extreme look to R. or L.	None	Very much diminished	Has paresis on the left side; also has had eye trouble.
R.E. +	R.E. very shortened	Much shortened	Much shortened	Nearly no reaction	On both sides nearly no reaction	Strong ocular nystagmus to → L.	Very much diminished	Keratitis.
?	Shortened	—	Much shortened	10 × R. = 0"; 10 × L. = 0"	2 balloons L.E., no reaction; 2 balloons R.E., minimal reaction	None	L.E. —; R.E. very much diminished	Has tinnitus but no vertigo. Right drum retracted; Eustachian tubes normal
L.E. +	Shortened	+	R.E. shortened; L.E. +	—	1 balloon R.E., no nystagmus; $\frac{3}{4}$ balloon L.E., slight	—	R.E. —; L.E. +	With air and water syringing hears

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
60 A. W—, 47, F.	Nov. 10, 1908.—An acute otitis 1 year ago, now vertigo attacks; with vomiting for the last 7 weeks. An attack lasts 8-10 hours, about once a week. Strong tinnitus left side. Nov. 28, 1908.—Feels dizzy, with nausea. March 19, 1908.—Still has vertigo attacks and nausea and vomiting	? Neuritis	Feb. 10, '08: R.E. norm.; L.E. 2½ m. March 19, '08: R.E. norm.; L.E. norm.	R.E. norm.; L.E. 1 m. R.E. norm.; L.E. 7 m.	←—
61 S. E—, 21, F. B.	Has had tinnitus 1½ years on L.E. Suddenly worse hearing since ½ year. Two months ago first attack of vertigo, beginning with a sudden noise in the left ear; vomits in the attacks; all objects turn to the left; duration of attacks 1½ hours; occur nearly every day; between the attacks gets dizzy on bending the head back	? Lesion of internal ear	R.E. norm.; L.E. 3 m.	R.E. norm.; L.E. ½ m.	→ L
62 E. D—, 50, F. B.	Had vertigo for last 3 years. Bad hearing and tinnitus on right ear for 2 years; headache; is neurasthenic, but no other disease	? Lesion of internal ear	R.E. ¾ m.; L.E. norm.	R.E. ⊖; L.E. norm.	→ L
63 B—, 34, M. B.	For 5 years bad hearing right ear, for 1½ years bad hearing left ear. Tinnitus both sides, especially right side, for last 2 years. For 2 years also vertigo; headache. (Ménière group of symptoms.)	? Lesion of internal ear	R.E. 2 m.; L.E. ¾ m.	R.E. O.E.; L.E. ⊖	—
64 M. H—, 50, M. B.	One week ago suddenly deaf with vertigo; no cause. No other history	? Lesion of internal ear	L.E. normal; R.E. 1 m.	L.E. normal; R.E. O.E.	→ L
65 F. B—, 16, M.	Four years ago diphtheria, but was deaf before this. No trauma. No hereditary tues	? Lesion of internal ear	L.E. normal; R.E. ¾ m.	L.E. normal; R.E. ⊖	→ L
66 F. K—, 37, F.	Three years ago had a nervous disease, ? mental. Two children; hearing was worse after children born. No puerperal fever	? Lesion of internal ear	R.E. ⊖; L.E. ⊖	R.E. ⊖; L.E. ⊖	—
67 T. B—, 67, F.	When a child had abscesses on the head. Has never heard well with the right ear, but has been quite deaf 5 to 6 years	Lesion of internal ear	R.E. ⊖; L.E. 3½ m.	R.E. ⊖; L.E. 1 m.	→ L

Rinne.	Bone-conduction.	C ₁ .	C ₂ .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
+	R.E. normal; L.E. shortened	—	+	<i>Feb.</i> 10, '08: 10 × R. = 20"; 10 × L. = 20"; No movement seen. <i>March</i> 19, '08: 10 × R. = 24"; 10 × L. = 15"; <i>Feb.</i> 19, '08: 10 × R. = 15"; 10 × L. = 10"; <i>Feb.</i> 28, '08: 10 × R. = 15"; 10 × L. = 25"	<i>Feb.</i> 10, '08: 1 balloon L.E., very slight reaction. <i>March</i> 19, '08: 1 balloon L.E., definite reaction; behind a little stronger than with L.E.	None. <i>March</i> 28, '08: Spontaneous nystagmus +; to R.; also behind spectacles a little	L.E. diminished. <i>Mar.</i> 19, '08: R.E. +; L.E. +	
R.E. + L.E. —	L.E. little lengthened	Much shortened	Little shortened	—	—	l on bending back	+	Left drum a little retracted; no nervous disease; is neurasthenic
R.E. — L.E. +	R.E. shortened	—	R.E. very much shortened	10 × R. = 28"; 10 × L. = 25"; head forward, 10 × R. = 17"; 10 × L. = 12"	Strong R.E.	Little + on bending head backward; stronger	+	—
+	Shortened	Shortened	Shortened	10 × R. = 45"; 10 × L. = 43"	Not taken	None	+	—
L.E. —	Much shortened	L.E. ⊖	L.E. much shortened	10 × R. = 20"; 10 × L. = 8"	1 balloon L.E., no reaction	To the left, also behind spectacles	R.E. + L.E. —	—
—	Shortened	—	Shortened	—	R.E. normal, strong nystagmus; no vertigo	slight	+	Never vertigo. Air and water —. No headache; no nervous disease.
Hears nothing	—	—	—	Normal	1 balloon R.E., slight; 1 balloon L.E., good	None	+	Drums fairly normal; sometimes has vertigo.
R.E. — L.E. +	R.E. much shortened; L.E. little shortened	R.E. ⊖ L.E. +	R.E. ⊖ L.E. +	10 × R. = 45"; 10 × L. = 55"; no vertigo	R.E. —, strong reaction; L.E. —, strong reaction	Slight	+	Has no vertigo or vomiting. Drums normal.

Name, age, and sex.	History.	Cause of deafness.	Conversational voice.	Whispered voice.	W.
68 F. J—, 28, F.	Has been deaf on the left ear for 6 months. Has had noises in the ear for 2 years. Is very nervous	Lesion of internal ear	R.E. normal; L.E. 1 m.	R.E. 7 m.; L.E. O.E.	→L.
69 T. S—, 48, F.	No history obtained	? Lesion of internal ear	R.E. O.E.; L.E. ½ m.	R.E. ⊖; L.E. ⊖	→R.
70 A. S—, 54, F.	History of long deafness—4 to 5 years; since had an accident, since when quite deaf	Rheumatic, ? trauma	R.E. ⊖; L.E. ⊖	R.E. ⊖; L.E. ⊖	→R.
71 J. H—, 43, M.	Heard badly with both ears for 20 years; quite deaf for 18 years with left ear; has noises on left side of the head. Three years ago had vertigo; now no vertigo. No history of lues. Worse in wet weather	? Lesion of internal ear	R.E. ½ m.; L.E. ⊖	R.E. O.E.; L.E. ⊖	→R.
72 P—, 42, M. B.	Has continuous tinnitus in left ear. Deafness 14 days ago; sudden onset. Attacks of vertigo; no lues; moderate. Smokes much.	Lesion of internal ear	R.E. norm.; L.E. ½ m.	R.E. 3 m.; L.E. O.E.	—
73 A. G—, 56, M.	Has had 20 years' bad hearing in both ears. Has been practically quite deaf for 4 weeks; only works in a factory where there are noises from machinery. Has slight vertigo at times	? Lesion of internal ear	R.E. ⊖; L.E. very loud words only	R.E. ⊖; L.E. ⊖	—
74 H. S—, 54, F.	Had at times attacks of deafness, but heard well from May to September, 1907, but since has been deaf; no cause known	? Lesion of internal ear	R.E. 10cm.; L.E. ⊖	R.E. ⊖; L.E. ⊖	—

Signs.—W. = Weber; R.E. = right ear; L.E. = left ear; ⊖ = nil; O.E. = On the ear;
For nystagmus signs

Rinne.	Bone-conduction.	C _p .	C _a .	Turning reaction.	Caloric reaction.	Spontaneous nystagmus.	Vestibular apparatus, whether irritable or not.	Remarks.
R.E. + L.E. -	R.E. normal; L.E. slightly shortened	R.E. slightly shortened; L.E. ⊖	R.E. + L.E. +	10 × R. = 25"; 10 × L. = 25"; strong vertigo	Small quantity of cold water gave reaction on L.E. with vertigo	Slight	+	Drums normal. Has attacks of vertigo lasting 3 to 5 minutes. With air and water hears by left ear.
? +	?	+	+	10 × R. = 30"; 10 × L. = 35"	½ balloon both ears, strong	Slight	+	With air and water syringing hearing proved on both ears.
-	Shortened	Very much shortened	Very much shortened	10 × R. = 15"; 10 × L. = 15"	¾ balloon R.E., weak; ¾ balloon L.E., slightly stronger	None	Diminished	With both ears hears loud conversational voice.
R.E. + L.E. -	Shortened	R.E. + L.E. ⊖	R.E. + L.E. ⊖	10 × R. = 0"; 10 × L. = 0"; no vertigo	1 balloon R.E., no reaction; 1 balloon L.E., no reaction	None	-	Both drums present, slightly retracted. Went through all Romberg's tests well.
+	Shortened	-	Shortened	10 × L. = 15"; 10 × R. = 22"	Typical reaction	None	+	Drums normal
-	-	⊖	⊖	10 × R. = 15"; 10 × L. = 15"	2 balloons R.E., no reaction; ½ balloon L.E., normal	None	R.E. -; L.E. +	Drums retracted and atrophic
+	Shortened	⊖	Shortened	-	¾ balloon R.E., normal; ¾ balloon L.E., normal	None	+	Has at times attacks of vertigo and vomiting, lasting about ½ hour; no tinnitus

+ under vestibular column = irritable; - under vestibular column = not irritable. see text.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE—LARYNGOLOGICAL SECTION.

Ninth Ordinary Meeting, November 6, 1908.

DR. DUNDAS GRANT, *President, in the Chair.*

Abstract of Proceedings by DR. DAN MCKENZIE.

THE PRESIDENT, Dr. DUNDAS GRANT, thanked the members of the Section for the honour they paid him in electing him to the Chair. He expressed a desire that the Section should be characterised by perfect order with the least possible amount of government. He referred to the gratitude that the members owed to those who brought forward cases illustrating errors in diagnosis or want of success in treatment, and asked for the exercise of tact and good taste in the criticism of such cases. He urged the members to remember that they were striving together to arrive at truth and not merely to get the better of each other in argument. He deprecated the indulgence in witticisms for the purpose of diverting attention from a serious argument, but welcomed them when they helped to impress on the memory facts founded on serious argument. He commended lucidity rather than brevity, and hoped to be able to guide the Section between the two extremes.

The following cases and specimens were shown :

CASE OF EXTRINSIC EPITHELIOMA OF THE LARYNX AND HYPO-PHARYNX IN A WOMAN, AGED FORTY-ONE.

BY THE PRESIDENT.

E. M.—, aged forty-one, complained of difficulty in swallowing of eleven weeks' duration, which had come on acutely with sore throat on starting teaching in a higher grade school. Laryngoscopically there was seen on the posterior wall of the pharynx, just above the level of the ary-epiglottic folds, an irregular shelving projection of a dull pink colour and slightly everted. When the larynx was drawn forward for hypo-pharyngostomy it was defi-

nately made out to be the upper margin of an ulcer, most probably of epitheliomatous nature, which extended on to the posterior part of the left ary-epiglottic fold. Only a very small œsophageal bougie could be passed in the direction of the left pyriform fossa, and in view of a possible error in diagnosis iodide of potassium, perchloride of mercury and opium were prescribed. A swabbing of the secretion from the ulcer revealed no tubercle bacilli, and a fragment removed for microscopical examination was found to consist simply of round-celled tissue; a further fragment, however, was found to consist of typical epithelium, and thus confirmed the original diagnosis. After a fortnight of the specific treatment it was certainly possible to pass a larger œsophageal bougie, but the diseased condition continued. Among the palliatives which have given her the most relief have been the inhalation of anæsthesin and the application of menthol and guaiacol. At first she could swallow only liquids; now she was able to take sops, and occasionally after the anæsthesin powder she could take a little boiled fish or a lightly boiled egg.

Sir FELIX SEMON drew attention to the fact that the three cases of laryngeal cancer in women shown at this meeting were of the extrinsic variety, and thus corroborated the observation he had made some years ago that laryngeal cancer was rare in women, and when it did occur it was of the extrinsic variety.

Dr. WILLIAM HILL, recalling to memory the remarks of Mr. Scanes Spicer at the meeting of the British Medical Association at Exeter, expressed his dissatisfaction with the nomenclature of laryngeal cancer. Sir F. Semon, following Krishaber, had divided it into "intrinsic" and "extrinsic." But the speaker wished to point out that cancer of the larynx was never extrinsic in origin. It might spring from the posterior surface of the posterior wall of the larynx (the parti-wall), and involve the laryngeal mucous membrane by extension. And although such cases were termed "extrinsic cancer of the larynx," they were not cancer of the larynx at all. "Extrinsic" cancer was thus pharyngeal in origin and affected the larynx secondarily by invasion. In the cases being discussed the cancer was pharyngeal and not laryngeal.

Dr. JOBSON HORNE said Dr. Hill had raised a point of much importance in the nomenclature of this group. According to Sir F. Semon intrinsic cancer of the larynx was practically unknown in women.

Sir FELIX SEMON said there seemed to be some confusion regarding the point, but, like Goethe, in the second part of Faust, he was not the author of the confusion others had made of his nomenclature. The term "intrinsic" referred to cancers within the cavity of the larynx proper; "extrinsic" was applied to those originating in the epiglottis, the ary-epiglottic folds and the arytenoid region—the upper margin of the larynx in short. Whether the division was good or bad was a matter of taste, but he held that it contained a practical difference of much importance. Intrinsic cancer remained limited for a long time, and so the chances of thyrotomy in these cases were good. Extrinsic cancer, on the other hand, led early to gland-infection, and so the operation was less likely to be

successful. He was quoted incorrectly when Dr. Horne ascribed to him the remark that cancer of the larynx proper was unknown in women. Cancer of the larynx was not unknown in women, but it was a rare disease.

Dr. SCANES SPICER said that the statistics of cancer of the larynx were grouped about this classification, and as the site of origin was not always the site where the disease was found the statistics were open to serious objection.

The PRESIDENT said the case he had brought forward ought properly to have been described as one of carcinoma of the pharynx, extending to the larynx.

Dr. HILL did not question the importance of dividing cancer of the larynx into two, but he suggested that for "intrinsic" and "extrinsic" the terms "glottic" and "parti-wall" should be substituted.

CASE OF THYRO-LINGUAL SINUS IN A BOY, AGED FOURTEEN.

By THE PRESIDENT.

The fistula opened about three quarters of an inch above the sternal notch, and was surrounded by an area of cicatricial tissue of the size of a sixpence. The cord could be felt extending up to the hyoid bone, behind which it disappeared. The finest possible probe could only pass for the distance of three quarters of an inch. It was very freely dissected out on October 9, and above the impermeable spot it was slit up so that a very fine galvano-cautery point could be inserted up as far as its termination behind the hyoid bone, so as to destroy the secreting surface. The dissection was then finished, and the removal of the tube appeared to be complete. The wound was closed up by means of a subcutaneous suture, but so much tissue was removed at the lowest part in order to dissect out the cicatrix that primary union did not take place at that part, although in the upper part the union was complete.

The PRESIDENT said he was not very sanguine of freedom from recurrence as he felt a suspicious cord under the cicatrix.

EPITHELIOMA OF LEFT VOCAL CORD.

By SIR FELIX SEMON.

Thyrotomy (December 11, 1905); recurrence; extirpation of left half of larynx (October 16). Since then has remained well. Voice good; hardly any stridor.

CASE FOR DIAGNOSIS.

BY SIR FELIX SEMON.

(?) Continuous fibroma of neck and larynx, or malignant disease of the larynx with enlargement of glands in the neck. Man, aged forty-five; eight years ago tumour removed from floor of mouth on left side, together with some enlarged cervical glands from same side. Microscopic diagnosis at that time epithelioma. Freedom for nearly eight years. Now big red, elastic, smooth, non-ulcerating tumour occupying region of left arytaenoid cartilage and left arytaeno-epiglottic fold, slightly moving from within outwards on phonation. Interior of larynx almost completely concealed from view except small anterior part of right vocal cord, which looks normal. Voice normal. No dyspnoea; no stridor; surprisingly small difficulty in swallowing. Externally, large flat tumour behind left sterno-mastoid, smooth, slightly movable, not tender, and a few shotty glands on both sides of neck. General health good, and no loss of flesh. Opinions are invited as to nature of tumour and to best method of procedure. Were it not for previous history of case the laryngeal appearances seem to point to diagnosis of soft fibroma of larynx, probably continuous with external tumour, as in the case repeatedly shown by Sir Felix Semon to the Laryngological Society of London.

SIR FELIX SEMON added that Sir Watson Cheyne, who had operated on the tumour in the floor of the mouth some years ago, had informed him that the diagnosis of epithelioma was purely clinical, and had not been confirmed microscopically. The specimen had not been preserved.

DR. STCLAIR THOMSON, referring to the case of laryngectomy, asked the exhibitor whether he had treated the case after operation with or without a tracheotomy tube. Regarding the case submitted for opinion, he thought the whitish ulcer he had seen on the growth was suggestive of malignant disease. He would not advise operation, although perhaps Gluck, of Berlin, might consider the case operable.

MR. HERBERT TILLEY thought that the right arytaenoid cartilage was involved as well as the left. He questioned whether laryngectomy with removal of the glands was not the proper treatment for a case like this. He had seen a similar case recently in a man, aged sixty-eight, in whom the operation had been performed with a good result. Otherwise the future held out no hope to the patient.

THE PRESIDENT thought that on the question of operation the patient might be left to decide for himself.

SIR FELIX SEMON, in reply, thanked the Fellows for their opinions, with which he agreed. In the after-treatment of the case of hemilaryngectomy Halm's tube was used at the operation, and was replaced by an ordinary tracheotomy tube which was worn for several days. In this operation it was beneficial to stitch the soft parts external to the

excised cartilage to the large muscles, so as to diminish the tendency to stenosis. Much deformity followed the operation, but its results were good.

INTERARYTENOID AND SUBGLOTTIC INFILTRATION OF FIFTEEN MONTHS' DURATION CAUSING DIFFICULTY OF BREATHING WHICH NECESSITATED TRACHEOTOMY.

BY MR. HERBERT TILLEY.

(The larynx and trachea were demonstrated by means of Bruning's apparatus for direct examination of the œsophagus and lower air-passages.)

W. A.—, male, aged fifty-seven, had tracheotomy performed on July 1, 1907, to relieve increasing difficulty in breathing. When seen by exhibitor, June 4, 1907, the glottis was encroached upon by a pyramidal-shaped non-ulcerated swelling springing from anterior surface of right arytenoid. Below the anterior commissure a smooth, rounded tumefaction could also be seen. Both vocal cords moved freely, but the right was congested and its edge irregular and swollen. Increasing doses of iodide of potash given until 30 gr. were taken three times daily, and for four weeks at a time had little apparent effect in reducing the swellings.

July 5, 1908.—The swelling had diminished in size, and, as breathing through the glottis was free, the tracheotomy tube was removed.

September 14.—Stridor was increasing again, and, by means of direct vision, a portion of the large swelling was removed. The following day reactionary swelling necessitated re-insertion of tracheotomy tube, which has remained *in situ* till the present.

MR. STUART-LOW congratulated his fellow-specialists in London for having at last adopted Killian's methods of examination, and for giving demonstrations of these methods. He suggested that if the patient were placed upon a small stool it would facilitate the passage of the tubes. The patient should be thoroughly cocaineised during the half-hour which preceded examination. He had been struck with Killian's particular attention to this detail.

MR. HERBERT TILLEY had found very little difference between the use of a chair of the ordinary height and a stool. Perhaps the difference would be of more consequence if the examiner were of short stature. There were many points of detail which could only be learned by experience. In a second case he had demonstrated he regretted his inability to show the bifurcation of the trachea, because it was inadvisable to force the tube past an area of ulceration and granulations in the tracheal wall. He expressed the opinion that these recent developments of direct laryngoscopy and bronchoscopy would revolutionise the treatment of simple growths and ulceration of the larynx.

CASE OF MALIGNANT DISEASE OF THE RIGHT MAXILLARY ANTRUM
INVOLVING THE OUTER WALL OF THE NOSE AND THE CHEEK IN
A MALE, AGED SIXTY-EIGHT.

BY MR. CHARLES A. PARKER.

The patient's attention was first attracted to his nose fourteen months ago by recurring attacks of epistaxis with sanious discharge between the attacks. Some nasal obstruction was subsequently noticed, but this has never been very marked. Three months ago the patient first noticed a swelling on the cheek near the inner canthus of the eye, for which he sought advice at the Royal Ophthalmic Hospital, where he was admitted on September 23. Mr. Lawson incised the swelling and let out a very little pus, and on examination found exposed bone at the bottom of the wound. Mr. Lawson thought the condition secondary nasal disease with implication of the sinuses, and transferred the patient to Mr. Parker at the Throat Hospital on October 16. On examination a firm, though friable, growth attached to the outer wall of the nose was seen filling the middle meatus. On posterior rhinoscopy the growth could just be seen round the upper and outer margin of the choana. On transillumination the right side was quite dark, whilst the left was quite clear. A small opening was discovered in the mouth to the outer side of the alveolar border, through which a probe passed into the antrum. Examination with the probe revealed that, though the antrum was by no means filled, growth could be detected on its upper and outer walls. Externally there was a hard infiltration of the soft tissues of the cheek immediately below the inner third of the infra-orbital margin. The incision wound discharged some thin serous fluid, and exposed bone could be felt on examination with a probe. A section of a portion of the growth removed from the middle meatus shows blood-clot chiefly with areas of granulation tissue, also areas of large and small mono- and polynuclear cells, suspicious of malignant disease.

Examination of the antrum with the probe and inspection of the nasal cavity show that neither of these regions are as extensively involved as is often the case, and it seems unusual under these circumstances to find an infiltration of the soft structures of the cheek.

Opinions as to the possibility or advisability of operative interference are invited, though in the exhibitor's opinion the

distribution of the growth renders the possibility of complete removal extremely doubtful, and the patient's age and general condition render the attempt inadvisable.

Mr. STUART-LOW had seen two similar cases. This case, he thought, had been allowed to go on too long. * In one of his cases the patient had a swelling on his cheek like a gumma, where the skin was inflamed but not fixed. The radical antral operation was performed and a fibrous growth was found on the posterior, orbital and anterior walls of the cavity. This was removed and did not recur. Dr. Wingrave had reported that it was either a granuloma or an endothelioma. His second case was that of a girl, aged twenty-two, who presented a swelling at the eye and nose. After anti-syphilitic treatment the radical operation was performed, with a good result. The diagnosis, however, according to Dr. Wingrave's report, was uncertain. He suggested that in the case shown on the present occasion the inflammatory action should be treated with vaccines, and that the radical operation should be performed afterwards.

Mr. CHARLES PARKER said in the case before the Section there was no doubt as to the position of the antral growth, since the fistulous opening in the mouth permitted examination of the antrum by means of a probe. In this way one could feel the tumour on the upper and outer wall of the cavity. He disagreed with Mr. Stuart-Low as to the swelling near the orbit. In his (Mr. Parker's) opinion this was malignant infiltration. Hence he did not agree that operation should be attempted.

FURTHER NOTES ON THE CASE OF A PATIENT WITH SUPPURATIVE CERVICAL CELLULITIS AND EPITHELIOMA OF THE EPIGLOTTIS.

BY DR. ABERCROMBIE.

The patient was shown at the January (1907) and November (1907) meetings of the Laryngological Section, and his progress was reported on at the February (1907) meeting of the Section. On February 5, 1908, Dr. Abercrombie removed enlarged glands from the right side of the neck, and Dr. Wyatt Wingrave reported that he could find no evidences of malignancy in them. This was consistent with the fact that the swelling had been larger before, and was subsiding at the time he was last shown at the meeting in November, 1907. On February 19 last the exhibitor again operated and removed a mass of matted glands, which Dr. Wingrave found to be epitheliomatous. He did not see him after this for several months. Then he called at the hospital in May, 1908, with a large swelling on the right side of the neck. Further operation was refused. The skin over the mass soon gave way, and he had repeated and severe hemorrhages during the following few months. He died soon after one of those losses of blood on October 12, 1908. Dr. Abercrombie saw him a week before, when his anemic state was extreme, and examination with the mirror

on that occasion showed that there was no recurrence of the disease in the larynx.

CASE OF PERFORATION OF SOFT PALATE FOLLOWING A SEVERE
ATTACK OF SCARLET FEVER IN CHILDHOOD.

BY DR. ABERCROMBIE.

The patient, a man, aged thirty-five, a bricklayer by occupation, was sent to me by his doctor on account of a discharging right ear, which also was a consequence of the scarlet fever attack. No reference was made by the patient to his throat condition, which was noticed in the course of the usual routine examination. The following history was obtained: Until he reached the age of four and a half years he had always been perfectly healthy in every way, and his speech at that time was quite normal for a child of that age, according to his mother's statement. When four and a half years old he had a most severe attack of scarlet fever and very nearly died from it. "Abscesses" developed in the throat and the right ear. A swelling formed behind the right ear, which broke and discharged for several months, after which a piece of bone came away through the opening and the wound then slowly healed up. The discharge from the right ear has continued more or less ever since. The speech defect was noticed after the scarlet fever, and the hole in the palate was discovered then too. The palatal perforation has not caused him any inconvenience, with the single exception of the defective speech. About eighteen years ago he had an operation performed with the object of closing the perforation, but this was unsuccessful.

This appears to be an undoubted case of perforation of the palate due to destructive processes in the course of severe scarlet fever. There are other evidences of old ulceration in the throat. The perforation is unilateral, and there are no signs of malformation present. As a rule in these cases the anterior pillars of the fauces are the parts affected, but here it is the right posterior pillar and soft palate. No operation is proposed; indeed, the patient would not consent to such. His ear is improving under antiseptic treatment.

Sir FELIX SEMON admitted that for many years he had held the old practitioner's idea that a perforation in the soft palate was always syphilitic. It would be remembered that at one time all perforations of the nasal septum were also considered to be syphilitic. But lately he had seen perforations occur under circumstances which suggested pneumo-

coccus infection, and he therefore wished to draw the attention of the Section to obscure inflammations of the pharynx associated with perforation, and suggested that bacteriological examination should be made in order to determine the cause of these inflammations. He was inclined to suspect that they were pneumococcus invasions.

Dr. PATERSON thought the perforations were syphilitic.

Dr. WILLIAM HILL had seen a similar case with extensive destruction.

Dr. MACDOUGALL said that in these cases the possibility of congenital defects should be remembered.

Dr. SCHOLEFIELD had had considerable experience of scarlet fever, and had found similar perforations in four or five cases out of 3000. There was surprisingly little scar-tissue left after the ulceration. He had seen another deformity of the palate, this time caused by the old-fashioned adenoid forceps, which might be mistaken for syphilitic destruction.

Mr. CLAYTON FOX thought the absence of cicatrices raised the question of a congenital defect.

Dr. DAN MCKENZIE remarked that in the case under discussion there were, in his opinion, well-marked cicatrices to be seen.

Dr. ABERCROMBIE, in reply, said there was no history of syphilis in this case.

LARYNGEAL VERTIGO IN A CASE OF EARLY TABES.

By Dr. STCLAIR THOMSON.

The patient came complaining of choking fits, with a sense of suffocation, from which he fell down insensible. The patient had had twelve of these attacks in the last eighteen months. They begin with suffocating feeling in the throat, a sense of choking, and he then falls down and loses consciousness. On one occasion he was taken up by the police, and, as his breath smelt of whisky (he had taken a little just before the attack), he was taken to the police-station. Fortunately a brother was able to explain his malady satisfactorily. He had noticed that his walk was unsteady in the dark, and that his legs got into a tangle when he ran. He had had shooting pains in his legs. He had not noticed any change in his voice; although a musical amateur, he had not been able to sing for the last three years. He had specific disease seventeen or eighteen years ago, and was well treated for twelve months.

Patient walked well, but it was noticeable that he spread his feet at rather a wide base, especially when standing with feet together and eyes closed. He suffered from cold feet and shooting pains in the legs. The pupils were irregular, and the right larger than left. Argyll-Robertson phenomenon. Pulse equal; no signs of aneurysm on auscultation or to the radiograph. The left vocal

cord moved very little on adduction, and did not abduct at all. It was fixed in the cadaveric position, and the voice was clear and apparently unchanged. Knee-jerks were absent.

Mr. LAMBERT LACK asked if these cases were common. Lately he had had three under his care. One presented the features of disseminated sclerosis—or as it was called nowadays, disseminated syphilis. In the other cases the cause was unknown. Thus none of them suffered from tabes. In one the attacks followed an illness which seemed to be influenza. They were characterised by choking cough and unconsciousness, and were rather alarming. He asked for information on the prognosis and treatment of these cases. Should tracheotomy be performed, and were the attacks dangerous to life?

Sir FELIX SEMON asked why the term "vertigo" had been applied to this case. The attack seemed rather to be violent laryngeal crises. There was very little vertigo. He had read of one case which had terminated fatally, but the usual history was that the attacks were most violent at their onset, and gradually became less and less violent as unilateral or bilateral paralysis of the other (tensor and adductor) laryngeal muscles developed. Ultimately the crises ceased altogether.

Mr. FITZGERALD POWELL narrated a case which had been under his care of an officer who suffered from malaria contracted in China, and who was afflicted with what in earlier days was termed "creeping paralysis," and, as a result, had lost the power of locomotion. He was subject to attacks of laryngeal spasm, in the course of which he became cyanotic and fell down unconscious, when the spasm relaxed and respiration was resumed. Eventually he died of the nervous disease.

Mr. PARKER had shown a similar case to this Society some time ago which presented all the characteristic symptoms. Later one cord became paralysed. The laryngeal disorder proved to be the earliest sign of tabes, which did not attain its full development until two years later.

Dr. HORSFORD described a case where attacks of choking came on during sleep and where no organic cause could be found for the spasm. Locally, the larynx presented double abductor paresis.

Dr. STCLAIR THOMSON said the only reason he had applied the word "vertigo" to the condition was that this was Charcot's term. He asked why they should be called "crises" rather than "spasm" of the larynx?

Sir FELIX SEMON replied that the term "crisis" was applied to the laryngeal spasm of tabes just as it was used to signify the gastric and other spasmodic attacks which were frequent occurrences in this disease.

The PRESIDENT used the term "laryngeal vertigo" simply because it had been originally applied to what he considered a definite class of case which had come under his notice on a few occasions. The patient, while on the point of giving a cough, suddenly lost consciousness and found himself on the floor. There was no sense of rotation, and on that account the term "vertigo" was not strictly applicable; he considered it rather a syncope, and preferred the term "laryngeal syncope." One of his patients was an elderly retired military officer of gouty constitution; his medical attendant was advised to treat him with bromide of potassium and general anti-gouty medication, and he reported several years later that there had been no recurrence.

Dr. STCLAIR THOMSON remarked that evidently the term "crisis" was only used in reference to the tabetic laryngeal spasm. When arising from causes other than tabes the condition was simply called "laryngeal

spasm." He withdrew the term "vertigo," especially as Charcot had confused spasm with other local disorders of the larynx. He related a case of a young woman subject to these spasmodic attacks who used to carry about with her a tracheotomy tube. She was a morphinomaniac. He had also seen a case in which nocturnal attacks of laryngeal spasm occurred, and in which death occurred five years later from mediastinal tumour. He alluded to a paper by Dr. McBride in which the terminological point they were now debating was fully discussed.

A CASE OF EXTENSIVE FRACTURE OF THE WALLS OF THE FRONTAL SINUSES.

BY MR. J. GAY FRENCH.

The patient, a man, was aged sixty-four at the time of his accident, which took place in September, 1903. He was struck on the forehead and left forearm by the step of a passing engine. On admission to the Great Northern Hospital he was found to have a fracture of both bones of the forearm and a cut three inches long on his forehead, with a marked depression over the frontal bones. The pupils were unequal, the left smaller than the right. Bleeding from the nose and vomiting of a considerable quantity of altered blood. Under an anæsthetic the wound in the forehead was enlarged, and it was found that the walls of both frontal sinuses—which were large—had been extensively fractured and driven in. There was also fracture of the posterior wall of the left frontal sinus, with exposure and tearing of the dura mater. The parts were cleansed, all loose bone removed, the dura sutured, and the skin-wound closed except for a drain. The patient made an uninterrupted recovery, being discharged from the hospital on November 9. He refused to have any plastic operation done. (Accompanying X-ray photograph.)

Mr. J. GAY FRENCH added that the patient undoubtedly owed his life to the fact that he had very large frontal sinuses. Otherwise extensive laceration of the brain must have occurred.

CASE OF CONGENITAL OCCLUSION OF THE RIGHT POSTERIOR NARIS.

BY MR. HAROLD BARWELL.

The patient, a girl, aged about twenty-five, has suffered all her life from complete obstruction of the right nostril. A deflection of the septum prevented adequate inspection of the deep parts of the nose from the front. With the rhinoscope mirror the right choana was seen to be occluded by a partition, in the upper part

of which a crescentic projection covered a small depression, or, possibly, a minute perforation.

MR. CRESSWELL BABER said that one saw these cases more frequently now than some years ago. In this case there was not the hemiatrophy of the face which experiments on animals would lead one to expect. In two cases exhibited by Dr. Dundas Grant and himself some years ago there was some degree of hemiatrophy but on the wrong side. There had been a case recorded where both posterior nares were occluded and one side of the face atrophied.

Dr. BARRY BALL, referring to the question of treatment, said that in a similar case under his observation Mr. Charters Symonds had suggested that the occlusion was due principally to the posterior edge of the septum, and that, therefore, it was important to remove this part of the septum. He had done so, and with complete success. In Mr. Barwell's case there was a difficulty in effecting this removal on account of the marked deflection of the anterior part of the septum. He advised, therefore, that the deflection should be rectified first of all, and then the posterior portion of the septum could be removed. The edge of the septum would be found close to the Eustachian tube of the affected side.

Dr. WATSON WILLIAMS said the obstruction would be difficult to rectify unless the posterior inch of the septum could be removed.

MR. SCANES SPICER remarked that the submucous resection in the case would be interesting. He considered the bony growth which occluded the naris would be found to be septal in origin. He thought that the whole pyramidal mass might be removed by the submucous resection.

Dr. MACDOUGALL had found that these cases might be dealt with by placing the guarded finger in the naso-pharynx and cutting back on the finger. Subsequently the opening could be kept patent by the passage of bougies.

Dr. PATERSON raised the question of the origin of these deformities. No doubt they were due to a persistent bucco-nasal membrane.

MR. CLAYTON FOX doubted whether a persistent bucco-nasal membrane explained the deformity. The parti-wall between the stomodæum and the fore-gut lay further back. There seemed rather to be a fusion of the elements which entered into the formation of the choanae.

MR. HAROLD BARWELL thanked Mr. Ball for his advice as to treatment. He would perform the submucous resection and then remove the back part of the septum with a chisel.

EPITHELIOMA, PRIMARY IN POSTERIOR WALL OF PHARYNX, NOW INVADING OESOPHAGUS AND LARYNX.

BY DR. WILLIAM HILL.

Female, aged thirty-nine. Tracheotomy and gastrostomy performed six and seven weeks ago respectively. When case was first seen, at end of August, the tumour was as large as a pigeon's egg and projected into vestibule of larynx, yet there was no marked cervical glandular enlargement at that date, and it was not a prominent feature even now.

Dr. HILL showed Mosher's instrument for direct laryngoscopy. Being larger than Killian's or Bruning's laryngoscope it afforded a less restricted view. It was most useful when employed in conjunction with general anæsthesia.

CASE OF TUBERCULOUS DISEASE OF THE LARYNX.

By DR. DAN MCKENZIE.

The patient, a man, aged fifty-one, was shown at the June meeting of the Section as a case of malignant disease. On that occasion the suspicion was expressed by Sir Felix Semon that the case was one of tuberculosis rather than malignancy. In consequence of this expression of opinion the case has been carefully watched with the view of arriving at a definite decision, and as time has gone on the clinical appearances have gradually come to assume the aspect of tuberculous. During the period of observation portions of the diseased tissue were from time to time removed and handed to Dr. Wyatt Wingrave for pathological examination, but it was not until several examinations had been made that the definite opinion was pronounced that the disease was tuberculosis. Dr. Wingrave's specimen is on exhibition. In the meantime evidence of tubercle in the lung was afforded by the discovery of crepitant râles at the right apex. Tubercle bacilli have not yet been found in the sputum.

The exhibitor was struck with the similarity to the text-book descriptions of cancer of the larynx presented by this case. The patient, when first seen, was aged fifty-one, and had been suffering from hoarseness for four months. The left side of the larynx was red, immobile, and so greatly swollen that the ulceration at the left side of the base of the epiglottis could only with difficulty be described. The ulcer looked epitheliomatous. The right side of the larynx seemed to be quite healthy.

Mr. J. GAY FRENCH remarked that the difficulties of diagnosis in such cases might be solved by recourse to the use of tuberculin under the guidance of the opsonic index.

Dr. MACDOUGALL asked how long there had been infiltration of the ary-epiglottidean fold? This he had always looked upon as evidence of tuberculosis.

The PRESIDENT thought the thanks of the Section were due to Dr. McKenzie for his candour in bringing forward this case illustrating an error in diagnosis. The President shared with Dr. McKenzie the responsibility for the error, for when first seen it seemed to him a case of epithelioma, especially in view of its limitation to one side of the larynx. He reminded the Section of Dr. Horne's formulation at Exeter of the rule to carefully eliminate tuberculosis before thinking of specific

or malignant disease. Also that it was sometimes more easy to be misled in cases in which we watched the gradual evolution of the disease than in those in which we saw it first at a later stage.

Dr. DAN MCKENZIE, in reply to Mr. Gay French, said there seemed to be no difficulty in the diagnosis in the first instance. Later, every possible method of diagnosis had been employed, save that of the tuberculin opsonic index. The ophthalmic-reaction was, however, employed, but as the patient's eyes were always inflamed and rheumy no definite information was obtained by this method. He had hesitated to inject tuberculin after testing the eye. The left ary-epiglottic fold had shown infiltration for some considerable time.

CASE OF RECURRING EPISTAXIS IN NASAL EPITHELIOMA.

BY MR. STUART-LOW.

Patient, a man, aged sixty-five, a stoker in gas works, sent to the hospital for recurring epistaxis from the right nostril, tumefaction of the base of the nose extending to the right orbit, and a spongy protuberance in the right middle turbinated region. Microscopic slide, photograph, skiagram, and Dr. Wingrave's pathological report proved the growth to be an alveolar epithelioma. Recently marked vertigo had set in, and as this indicated extension of the disease to the cranial cavity, the exhibitor looked on the case as inoperable.

CASE OF A WOMAN WITH RHINO-SCLEROMA (shown at a former meeting).

BY MR. STUART-LOW.

The exhibitor, in view of the futility of all treatment hitherto employed, desires opinions on the feasibility of using vaccines.

Dr. JOBSON HORNE regretted that cases were exhibited as instances of certain definite diseases without the diagnostic facts being fully presented. In the case now under discussion there did not seem to be any pathological evidence that the condition present was actually rhino-scleroma.

Mr. FITZGERALD POWELL thought that the appearances were those of syphilitic lupus rather than of rhinoscleroma.

Dr. STCLAIR THOMSON looked upon the case as lupus or syphilis. The patient had left Warsaw thirteen years ago, and thus if the disease was rhino-scleroma it must have lain latent for a very long time. He drew attention to the ulceration in the case, because in rhino-scleroma there was infiltration without any ulceration. He understood that the disease was no longer ascribed to the action of Forscher's or Friedländer's bacilli.

Mr. STUART-LOW said the diagnosis had been based upon the pathological evidence supplied by Dr. Wingrave. A section of the tissue was

on exhibition (but he thought Dr. Jobson Horne had not seen it). Syphilis had been excluded by the failure of anti-syphilitic treatment. The surface of the infiltrations was moist and ulcerated, because he had been induced to remove so many portions of the tissue to satisfy the members of the Dermatological Section at which the case had been shown.

Dr. JOBSON HORNE proposed that the microscopic sections should be handed over to the Morbid Growths' Committee for report.

CASE OF DEFLECTED SEPTUM CAUSING COMPLETE OCCLUSION OF RIGHT SIDE OF NOSE.

BY DR. CATHCART.

The patient is an actor by profession. Although there is complete occlusion of the right side of the nose he says it does not interfere either with his breathing or his voice. He does not desire any operation on the septum unless the shape of the nose can be changed externally.

CASE OF LUPUS ERYTHEMATOSUS OF FACE WITH PATCHES ON MUCOUS MEMBRANE OF PALATE AND INSIDE OF CHEEK.

BY DR. LAMBERT LACK.

Mr. BARRY BALL said he had seen this case some time ago, and had diagnosed it as a case of lupus vulgaris of the mucous membrane and lupus erythematosus of the face. It had been shown as such at the Laryngological Society, and some doubt had then been thrown upon his diagnosis.

Dr. HARTIGAN asked if lupus erythematosus of mucous membranes was common. He had treated similar cases with copper ionisation with successful results.

Mr. LAMBERT LACK drew attention to his description of the case as one of lupus erythematosus of the face with "patches" on the mucous membrane. He had refrained from calling these patches either lupus vulgaris or erythematosus. Dr. Sequeira had told him that such cases were not uncommon, but he himself had never seen a similar case. The patch on the cheek was not like common lupus.

INTRINSIC LARYNGEAL GROWTH IN A WOMAN, AGED SIXTY-FOUR (With microscopic section.)

BY DR. JOBSON HORNE.

He considered the growth innocent. Probably it was a papilloma.

CARCINOMATOUS GROWTH OF THE ARYTENOID CARTILAGE.

BY MR. ARTHUR EVANS.

The right half of a larynx showing a large carcinomatous growth of the arytenoid cartilage, which almost completely filled the upper aperture of the larynx, producing intense dyspnoea, and which was removed by operation.

MODELS OF OPERATIONS FOR PAN-SINUSITIS.

BY DR. WATSON WILLIAMS.

THE SOCIETY OF SOUTH GERMAN
LARYNGOLOGISTS.*Fifteenth Meeting, held in Heidelberg, June 8, 1908.*

KÖRNER (Rostock) demonstrated a specimen of *Carcinoma of the Hypo-pharynx* which had invaded the larynx. He emphasised the value of hypo-pharyngoscopy.

v. EICHHORN (Heidelberg).—*On the Application of Fulguration in Laryngology.*

The application is very painful, so that general anaesthesia is required. As the electrode approaches the object bundles of sparks pass, the length and intensity of which can be regulated; usually sparks of from 2–5 cm. in length are employed. The first effect is that a blister is raised; this quickly bursts, and the part then becomes charred. To prevent this, compressed air or CO₂ is at the same time conveyed to the part.

Microscopic preparations from tissues so treated show swelling and vacuolation of tumour cells, the connective tissue not being affected. Unfortunately the action does not extend deeper than 1 cm., so that the surgeon's knife is still necessary. In fact a thorough clearing out of the tumour must precede the fulguration. The latter destroys any invisible remains of tumour tissue, and protects the patient from recurrences.

It is impossible as yet to form a definite opinion as to the value

of fulguration; it can, however, be said that by this method results are achieved in a few days which previously could only have been obtained by long-drawn-out radium or X-ray treatment. It is also of great value in the treatment of recurrence and of inoperable tumours with a sloughing, stinking surface.

The author reports a case of carcinoma of the larynx involving the left cord and the lower surface of the right cord, in which Czerny, after thyrotomy, excised the left cord and the tumour under the right cord, and then applied fulguration for five minutes, with a good result. He also reports the case of a tumour of the pharynx in a child which had previously been excised repeatedly, but had rapidly returned. This also was treated by fulguration after excision; there was no local return. The child died three months later; by this time a similar tumour had appeared on the right tonsil.

KILLIAN (Freiburg).—*The Diseases of the Accessory Sinuses of the Nose in Scarlet Fever.*

During the past winter Killian observed two cases of accessory sinus disease during an attack of scarlet fever. In the first case, on the first day on which the patient was seen, there was considerable doubt as to whether an operation was necessary. On the second day the child was beyond all hope of recovery, even with operation. Guided by this experience, Killian operated at once on a second case with a successful result.

Killian had previously observed four cases (two adults), and cases are reported by Preysing (4), Lange (6), Scholle (2), Edm. Meyer (1), Hoffmann (1), Tilley (1), and Castex (1).

There are two forms of scarlatinal sinusitis—a simple and a complicated. Probably the simple form is fairly common, but undoubtedly it is usually overlooked, and passes off without becoming chronic.

The complicated form is much better known, and shows well-marked symptoms. Oedema appears early (fifth day to third week). There is marked tenderness on pressure; there is high fever. There is occasionally slight exophthalmos. It is usually mainly an affection of the ethmoid labyrinth that has to be dealt with, hence the oedema appears at the inner part of the upper lid. Usually the oedema remains stationary, but it may vary in degree. In about half the number of cases an abscess forms in the deeper layers. The oedema and pus formation results from the spread of the inflammation to the periosteum; the bone is also rapidly infected.

The really dangerous cases are those in which a frontal sinus is present. Three cases, children, aged nine, ten, and eleven and a half respectively, died of purulent meningitis; de la Camp observed a case of thrombosis of the superior longitudinal sinus with resulting pyæmia.

When œdema has appeared in a case of scarlatinal sinusitis an operation is nearly always required, and all diseased tissue should be thoroughly removed.

VON EICKEN (Freiburg).—*Our Experience of Complications in Diseases of the Accessory Sinuses of the Nose.*

In this communication the author has collected the cases which have come under observation in the clinic during the past ten years. By complication is meant that the inflammatory process has extended beyond the wall of the sinus. One of the first symptoms usually is œdema; the importance of this symptom varies, and much depends on whether there is also fever, severe pain, etc. In chronic empyema with an acute exacerbation the œdema may pass off on the disappearance of the acute symptoms without any treatment. This is also the case in acute sinusitis, especially in the influenzal form. Seven cases are detailed illustrating the symptom œdema.

Three cases of abscess were treated. In the first the abscess was at the inner angle of the eye, in connection with the ethmoid labyrinth. In the second the swelling appeared on the forehead. In the third the upper lid became swollen, but the abscess burst into the nose.

One case of meningitis serosa was observed; here the frontal sinus was affected; the dura was exposed but appeared normal; the meningeal symptoms disappeared after the operation.

Three cases of extra-dural abscess came under observation. All were cured by operation; in each a marked œdema of the upper lid had appeared suddenly.

Two cases were lost after operation owing to purulent meningitis. In the first, as the patient was pregnant, the antrum was not opened though diseased; packing was placed in the ethmoidal region, the frontal sinus, ethmoidal labyrinth and sphenoidal sinus having all been opened, and it is possible that the pus in the antrum may have been sucked up by the packing and infected the meninges by means of the lymph tracks in association with the olfactory nerves.

In the second the frontal sinus and anterior ethmoidal cells were laid open, but the sphenoidal sinus, which was not known to

be diseased, was left untouched. At the section the chief collection of pus was found round the hypophysis, the sphenoidal sinus was diseased, and probably infection occurred through the venæ perforantes.

One case of abscess in the frontal lobe was successfully treated; the infection had spread from the frontal sinus.

Two cases of osteomyelitis came under observation; both were fatal in the first primary closure of the operation wound, for clearing out the frontal sinus may have been the cause of the osteomyelitis.

Two cases also were treated of what was probably a thrombosis of the cavernous sinus; a *post-mortem* examination was, however, refused in each.

There were also observed two cases of thrombosis of the superior longitudinal sinus, and finally, in two cases metastatic abscesses appeared; the second case ended fatally.

VON EICKEN (Freiburg).—*Saliva in the Nose.*

When the patient, a young woman, is given chocolate, or, if hungry, is shown a favourite article of food, a few drops of clear watery fluid escape from the left nostril. Six years previously she had undergone an operation for disease of the frontal sinus, ethmoid labyrinth, and the maxillary antrum. The wound in the mouth had been kept open for a considerable time, so that a permanent fistula remained.

BRÜNINGS (Freiburg).—*A Contribution to the Submucous Resection of the Nasal Septum.*

In this paper Brünings begins with a description of some minor modifications of instruments. The most important part of his communication is devoted to a description of clamps which he has devised for keeping the flaps of mucous membrane in apposition after the operation. These have the same effect as packing without obstructing the nasal respiration, and also they permit of a complete view of the parts at any time during the after-treatment. The clamps are made of twisted wire and usually two are required; they are removed in twenty-four hours. It is essential that the septum should be entirely resected at the parts where the clamps press. If a large area remain uncovered by the clamps, Brünings advises that an incision should be made to prevent the formation of a hæmatoma.

ZARNIKO said he was glad that at last Killian and his school

admitted the discomforts of packing. Zarniko had experienced the advantages which Brünings achieved through his new procedure ever since he had done submucous resections. He obtained exactly the same results by not using any packing at all.

GORIS (Brussels) demonstrated *Specimens of Primary Tuberculosis of the Tonsils*.

NEUGASS (Mannheim).—*A Case of Primary Syphilitic Lesion of the Nasal Septum*.

The patient, aged twenty-two, had an ulcer the size of a ten-pfennig-piece on the right side of the septal cartilage at the usual site for idiopathic ulcers. There were no swollen glands. The ulcer did not heal, but shortly afterward a typical secondary rash appeared. The patient admitted that he was accustomed to pick his nose with his finger, and also that he had touched the parts of an infected woman.

W. G. PORTER.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirtieth Annual Meeting held at Montreal, May 11, 12, and 13, 1908.

(By courtesy of the *Medical Record*.)

DR. HERBERT S. BIRKETT, of Montreal, President.

(Continued from p. 580.)

WEDNESDAY, MAY 13—THIRD DAY.

The Morphology of the Turbinals.

DR. JOHN M. INGERSOLL, of Cleveland, O., gave a description of the turbinal bones as occurring in fishes, loons, reptiles, panthers, apes, and man, illustrating his remarks with some excellent drawings. His recapitulation was as follows: The turbinal structures of fishes except dipnoi were used only for olfaction, and were simply ridges covered by olfactory mucous membrane. In reptiles, owing to the changed manner of respiration, the nasal organ functionated both in respiration and olfaction and both respiratory and olfactory turbinals were found. They were, however, quite simple structures. In birds the importance of the respiratory function increased and the respiratory turbinals showed a high degree of development.

The expanse of respiratory mucous membrane was very largely increased by the coiled structures of the turbinals. The olfactory turbinals were simply ridge-like structures. In microsmatic mammals all of the turbinals exhibited a very high degree of development. Their numerous fine branches and coils enormously increased the amount of mucous membrane exposed within a comparatively small space, and thus increased the efficiency of the nasal organs. In apes, all of the turbinals had degenerated or reverted to some of the more primitive types. In man the turbinals were quite similar to the turbinals of the ape and were all rather simple structures. Rudiments of the fourth and fifth ethmoidal turbinals were sometimes found. The agger nasi was the rudiment of the nasal turbinal. Such rudiments were much more frequently present in the embryo than in the adult.

Dr. D. BRYSON DELAVAN called attention to the fact that in saw operations on the septum we often came in deep section on a slightly oval space, which might be the remains of Jacobson's organ or of the channel leading to it. It was difficult to explain its origin and line of communication through the hard palate with the mouth.

Dr. W. E. CASSELBERRY had never been able to find the space referred to by the previous speaker.

Dr. H. P. MOSHER said that in discussing Jacobson's organ we were greatly helped by comparative anatomy. He described the appearance of this organ in the human fœtus and its gradual evolution to the condition found in the adult.

Hypertrophic form of Syphilis Involving the Fauces and Epiglottis.

Dr. W. F. CHAPPELL, of New York City, reported the case of a boy, aged fourteen, who had previously been treated in hospital for tonsils and adenoids. Some four years later he again came under observation, with symptoms of snoring in sleep, guttural voice, laboured breathing, and dyspnoea on exertion. Frequent choking and strangling spells came on, though the boy seemed in perfect health. Examination showed both faucial pillars hypertrophied and much hypertrophic tissue occupied the position of the tonsil. The uvula was much enlarged in each dimension and nearly filled the pharyngeal cavity, and was probably the cause of the choking. The same condition existed in the epiglottis, which had lost its flexibility and allowed food to enter the larynx. The arytanoids shared in the general hypertrophy. No implication

of other laryngeal structures could be made out. The mucosa covering all these parts was greyish, smooth, and shiny. Adrenalin had no particular effect on the hypertrophied tissue. A portion of the uvula was removed, with much relief to the symptoms of choking and strangling. Examination of the portion of the uvula excised suggested a diagnosis of hereditary specific infection, though nothing corroborative could be obtained in the personal or family history. Under mixed treatment and later Donovan's solution of arsenic and mercury considerable improvement resulted, but considerable hypertrophy of the parts involved still remained. Most of the obscure cases of pharyngeal hypertrophy on record had proved to be of an amyloid nature. Such a case as the author's was unique.

Membranous Tertiary Syphilitic Lesions.

Dr. D. BRADEN KYLE, of Philadelphia, reported three cases resembling Vincent's angina. In all there was a membranous deposit on various areas in the throat. All the patients were males over thirty years. The membrane could be easily stripped off and left a ragged, worm-eaten surface, which bled easily. There were no associated systemic symptoms at the time. The symptoms were the usual ones of irritation from an ulcerated condition in the mouth. In all there was a denial of specific disease. All sorts of remedies were applied without avail, and then the iodides and finally mixed treatment, but without result. The membrane continued to form and the ulcerations grew deeper. Bacteriological examination was non-decisive in one case; the two other cases revealed Vincent's spirilla, but many other bacteria as well. The author finally decided that in spite of the negative results of treatment the cases were specific, and that if the patients would enter the hospital and receive treatment by innunction and obtain the proper nourishment they would recover. His surmise proved correct, as inside of ten days the membranes began to disappear and recovery was fairly rapid. Up to the present time there had been no relapse, though there was slight scar tissue in the mouth. The author's aim in reporting these cases was to note (1) the unusual form of tertiary lesion, (2) its close resemblance to Vincent's angina, and (3) the importance of the therapeutic test. In the cases with Vincent's spirilla he did not believe a mixed infection was present, but that the presence of the latter organism was purely accidental.

Cysts, Abscesses, and Edema of the Epiglottis.

Dr. HENRY L. SWAIN, of New Haven, reported several cases and discussed their pathology. In the depths of the branchial clefts in the embryo, epiblast and hypoblast were seen separated by only a network of a single layer of fibres. An inclusion cyst, such as these epiglottis cysts were, might come on one or the other side of the partition, but when in later years these cysts filled up, the swelling would be at the base of the inside or outside of the epiglottis. Also in the region under discussion we might have dermoid cysts and supernumerary thyroid glands. The exact cause of the sudden swelling of all these structures was often obscure. They might become infected from some previous inflammation, but often their enlargement, with the usual symptoms of throat discomfort and mechanical disturbance of the parts, was the first thing noticed. The indications for treatment were plain and clear. Dr. Swain also reported three cases of what he called "idiopathic inflammatory œdema of the epiglottis" for lack of a more definite name. The attacks were in no way connected with previous disturbance in the throat. In one case there had been a leptothrix deposit on the tonsils, which had caused considerable disturbance. In this case the trouble was supposed to have been due to a small abscess which could not be located, but which, from the sudden subsidence of symptoms, had evidently ruptured. In the former two instances the simplest explanation would be to assume the existence of a perichondritis, which was accompanied by œdema and pus formation. It might be that there was an inflammation of a small retention cyst on the epiglottis.

Dr. W. E. CASSELBERRY said that Dr. Swain had grouped two classes of disease which had received very little attention in literature. We quite frequently met with cysts in the region of the larynx, epiglottis, aryepiglottic folds, and base of the tongue classified simply as "cysts," but it might well be true that branchial cysts occurred in the region of the epiglottis. As to those cases resulting from idiopathic inflammations of the epiglottis, we must remember that most conditions in this region formerly styled idiopathic were in reality infections and caused by micro-organisms. This was notable in some epidemics of diphtheria in which some cases seemed to show an exudate, while others showed merely œdema, and yet in both we found the Klebs-Loeffler bacillus.

Dr. J. E. NEWCOMB said that diphtheria always meant the presence of a membrane somewhere, although it might be only a

small patch down in a bronchus, but the old conception of diphtheria without membrane must be given up.

Dr. EMIL MAYER referred to a case of inflamed epiglottis causing obstruction, for which a tracheotomy was about to be done, but under hot inhalations and adrenalin applications the swelling had subsided. Later, after the case had cleared up, it was noted that more than half of the epiglottis was gone, and his final conclusion was that the case was one of acute inflammation of that portion of the epiglottis remaining after a previous specific destruction.

Dr. E. FLETCHER INGALS had recently cured a cyst of the ary-epiglottic fold by aspiration and injection with iodine and carbolic acid.

Dr. J. M. INGERSOLL had treated two retention cysts of the epiglottis by simply cutting the tops off, and there was no recurrence.

Prolonged Intubation in the Adult.

Dr. W. K. SIMPSON, of New York, reported a case of a woman who had come under observation in 1903. For five months she had been wearing a tracheotomy tube inserted on account of urgent laryngeal dyspnoea. The latter had come on in connection with a severe cold, during which she had cough, hoarseness, and increasing difficulty in breathing, so that tracheotomy became necessary. She greatly desired to be freed from the wearing of the tube. Examination of the larynx showed it to be practically closed, all the landmarks being obliterated. The superior portion, including the arytaenoids, was incorporated in a more or less uniform bilateral mass of a rather dense character, leaving a mere slit in the centre. There was no apparent loss of tissue and practically no motion of the parts. Anti-syphilitic treatment was given, though the question of old specific infection was doubtful. Results were not at all definite. Finally, under chloroform, a medium-sized hard rubber intubation tube was passed and the tracheotomy tube withdrawn. The tube was worn well, but was finally coughed out and replaced, and this happened several times. Still later the tracheotomy slit was closed. In due time the intubation tube was removed, having been worn over four years. At the present time the voice was in fair condition. At times the quality was excellent, but it became hoarse on slight cold. The laryngeal colour was rather pale. Motion was somewhat restricted owing to induration about the left crico-arytaenoid joint, while the right side moved more freely. The right cord was fairly normal in contour, colour, and

motion, while the left seemed to have been more or less absorbed. The glottic space, though irregular, was ample for breathing. The author would lay stress on the following points: (1) The tolerance of the larynx to long-continued pressure; (2) the superiority of such pressure in causing absorption over the older methods of temporary introduction of dilating instruments; (3) the comparative comfort with which such tubes might be worn indefinitely; (4) the improved general condition of the patient while wearing an intubation tube in contrast to the debilitating influence and local annoyance of the tracheotomy cannula; (5) the superiority of the hard rubber over the metal tube in the lessened formation of calcareous deposit, thus lessening the dangers of ulceration and formation of exuberant granulation tissue.

The Question of Rheumatism originating through Tonsillar Infection.

Dr. GEORGE B. HOPE, of New York City, presented a paper with this title. He traversed the familiar paths of the discussions of the last few years on this mooted question, and declared his disbelief in the theory that rheumatism gained access to the body through the tonsils. These organs did not disseminate bacterial infection to the degree commonly conceived. Bacteria were rarely allowed to pass beyond the capsule into the surrounding lymph nodes to develop active inflammatory processes. Hope believed that the theory of a tonsillar infection with reference to rheumatism rested on inference rather than on proved facts. Tonsillectomy for this condition was as illogical as rubbing the joints for the prevention or cure of arthritic rheumatism. Hypertrophied and indurated tonsils should be removed, it is true, but this was a matter wholly independent of their having a causative relation to rheumatism.

The Treatment of Inoperable Tonsillar Hypertrophy by Interstitial Injections of Silver Nitrate.

Dr. J. L. GOODALE, of Boston, presented the results of his observations on injections of enlarged tonsils with silver nitrate. Three cases with hæmophilia and tonsillar enlargement had recently come under his observation, and crypt dilatation with cheesy detritus was evidently to blame for the infectious arthritis present in all the cases. One objection to the employment under such conditions of chromic acid or the galvano-cantery was that the diminution in

the size of the tonsil was followed by irregular contraction with narrowing of the orifices of the crypts, out of proportion to the diminution in the size of the lumen near its base. Such contractions might not prevent the incarceration of detritus. The author consequently employed silver nitrate solutions ranging in strength from 4 to 8 per cent., making the injections every five to eight days. The amount of reaction had depended on the strength of the solution and had varied from slight to severe pain. Under this plan progressive diminution of the tonsils had taken place and the results had been gratifying. In one case the organs were reduced to one quarter of their former size. A blunt, strong needle such as was used by dentists for injecting gums was the best one to use. It might be straight or curved. Dr. Goodale believed that the effect of the silver was, theoretically at least, in harmony with the normal process of retrograde metamorphosis of the organ, in that it was a sclerosis proceeding from the base to the periphery and led to a symmetrical diminution in the size of the crypts. He was encouraged to give it a further trial.

Hæmorrhage following Quinsy; Ligation of the Common Carotid Artery; Recovery; with a Study of Fifty-one Cases of Hæmorrhage in Connection with Pharyngeal Suppurations.

Dr. JAMES E. NEWCOMB, of New York City, read a paper with this title. His patient was a man, aged fifty-five, seen in consultation with Dr. J. D. McBarron. He had had quinsies all his life, but an immunity for the past ten years. The attack in question came on without any special features, and on the fourth day the presence of pus was evident, and it seemed to be located rather far out in the soft palate. The patient's kidneys seemed to act well, but there was distinct arterio-sclerosis. Incision of the quinsy was followed by escape of healthy pus and almost immediate bleeding. The latter was easily checked, but recurred several times, and finally became so profuse and persistent that a radical measure was deemed necessary. It was impossible to locate the bleeding point, and the condition of the parts involved rendered any plan of suturing out of the question. It was found that the ulcerative process had worked backward and that the soft palate had perforated. Ligation of the common carotid artery was decided on and was done by Dr. C. N. Dowd. Recovery was without incident. No disturbance of cerebration resulted. Dr. Newcomb had found fifty additional cases reported in which hæmorrhage occurred in

connection with suppuration in the pharynx. Of this number forty-one occurred in connection with quinsies. They might be classified as follows: (1) Spontaneous opening of the abscess, with immediate hæmorrhage, 11, with 7 fatal and 4 recovering; (2) spontaneous opening, with secondary hæmorrhage, 15, with 8 fatal and 7 recovering; (3) opening by incision, with immediate hæmorrhage, 7 cases, with 4 fatal and 3 recovering; (4) opening by incision, with secondary hæmorrhage, 8 cases, with 4 fatal and 4 recovering. In addition there were 5 cases following retro-pharyngeal abscess, with 2 fatal and 3 recovering; 3 cases in connection with scarlatinal suppuration, 1 fatal and 2 recovering; and 2 cases in connection with gangrenous tonsillitis, both fatal. Summarising, there were 51 cases, with 23 recoveries and 28 fatalities, or 54·8 per cent. Operations had been done as follows: Ligation of the common carotid, 16 times, with 11 recoveries and 5 deaths, once of external and internal carotid with recovery, and once of all three vessels with recovery. Two points were considered in detail by the author: First that relating to the invasion of vessel walls by suppurative processes. For a long time it was not believed that such a thing happened, but now it was universally admitted. In the case of quinsies the sudden diminution of pressure of confined pus when rupture of the abscess took place (or incision was made) on a weakened arterial wall might lead to immediate rupture of the latter. In the second place we had to consider the differential diagnosis of swellings in the tonsillar region when accompanied by evidences of inflammation. We might have simple inflammation, tonsillar tumour, or aneurysm. The choice of operation would depend on our diagnosis. Autopsy records had shown that in the class of cases considered in this paper the internal carotid had often been involved. Ligation of the external carotid alone would not be sufficient to check bleeding. The dangers of ligation of the common carotid were not to be overlooked, but this latter point must be decided by the criteria of general surgery.

Dr. W. E. CASSELBERRY thought that more stress should be laid on the dangers of ligation of the common carotid. It was disastrous to ligate the vessel for hæmorrhage and get a paralysis of the opposite side. While the emergency named in Dr. Newcomb's paper had never occurred in his own experience, he had always thought that ligation of the external carotid would suffice as it did in tonsillar hæmorrhage.

Dr. W. L. BALLENGER said that he had learned by experience that

in dissecting tonsils if we avoided injuring the musculature of the pillars and of the bed of the tonsillar fossa we would not have severe hæmorrhage, but if we did injure these structures severe bleeding was apt to follow. In opening quinsies he separated the anterior pillar as if he was going to remove the tonsil and then by pushing the pillar out of the way and separating it from the superior constrictor muscle the abscess could be located with accuracy.

Dr. J. O. ROE preferred the Hilton-Fagge method of opening these abscesses with curved scissors and never used a knife.

Dr. NEWCOMB, in closing, said that the question of danger to brain integrity in ligating the common carotid was the same, no matter for what emergency this operation was done. The autopsy records in the material collected by him showed in several instances the internal carotid was the vessel which had been perforated. Ligation of the external carotid in such cases would be useless, and he again emphasised the fact that the conditions in a condition of suppuration and after ordinary operation for tonsillotomy or tonsilleectomy were entirely different. In one case we were working in healthy tissue, notwithstanding the hæmorrhagic complication; in the other we were working in tissue which had lost its vitality and to which the application of styptic measures was conditioned by this fact. In an ordinary post-tonsillotomy hæmorrhage the bleeding site was often visible, but this was not the case in hæmorrhages in connection with pharyngeal suppurations. There was no objection to a primary ligation of the external carotid, but it would not always stop the bleeding.

CORRESPONDENCE.

To the Editor of THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

MY DEAR SIR,—In an editorial on page 6 in the January number of the JOURNAL OF LARYNGOLOGY for 1908 the statement is made that "No modification of the submucous resection (Killian) operation for the relief of septal deformities of any real importance has been suggested, and this method of procedure, as originally advocated by Killian, retains the popularity it so richly deserves."

The impression the reader obtains from this paragraph is that Killian was the first one to describe a useful method of resection of deviations of the septum, that his method has justly extinguished all others, and that it is so classically perfect that it is practically incapable of further improvement, not to speak of displacement, by better ways of operating.

This attitude seems to me unfair to the others who have worked to develop the submucous resection, and among them to me. My first descriptions of my way of performing the operation were published in 1902 and 1903, included the careful preservation of the mucosa on both

sides of the septum, and represented a perfectly practical method, and one, above all, adapted to all varieties of deflections. Many of my countrymen at once adopted it, and the instrumentarium had a large sale in America and abroad, as it still has to an increasing extent. Killian's first detailed description of his submucous procedure did not appear until 1904, two years after my first paper. Owing, however, to its author's fame it became at once the method regarded as the standard one and as one making further study of others' ways needless.

If the Killian method of resecting deflections and his instruments for the purpose were really worthy to supersede all others nothing more should be said. Far from this, however, his procedure, while perfectly successful in simple cases of standard anatomical structure, is apt to fail the operator in difficult cases and seriously lacks adaptability, especially to deflections with adherent coverings, extreme deviations, deep-seated bony angles, and to the minute nostrils of children. In all of these cases it is apt to leave the surgeon with the mortification of a half result, and often a perforation. The insufficiency of the method has thus often been brought to my notice, and of late in London, where a clever and experienced operator had to leave the deepest part of a bony deflection in the nose, which continued the obstruction to respiration as much as if nothing had been done.

The Killian submucous resection is founded upon the false supposition that the coverings of deflections are not only strong enough to always endure their forcible uplifting by dull-edged or blunt elevators, or at the most chisel-edged blades, so that such instruments constitute the basis of Killian's set, but also in the erroneous assumption that in addition these coverings always readily peel away, except in a few well defined places, such as the hollow of the concavity. Based on this idea of invariably ready denudation is Killian's narrow entrance to the operative field by means of a mere slit through the mucous membrane at the front of the septum, which makes more or less blind work in baring the deviation of its coverings a necessity, so that where they are adherent they are subject to the danger of tearing and perforations, and the impossibility of accomplishing sufficient denudation of the deflection where the coverings thus cling to the septum compels the operator to be satisfied with an insufficient resection or else, if he be rough, he will bruise the mucosa by overstretching it in his forcible efforts to uplift it, thus inviting inflammation and even suppuration. While I admit that the Killian method, because of its simplicity, will always have followers who will risk its uncertain results, I advocate my own way as one that with least traumatism will resect any deflection, no matter how difficult, with invariable success for him who has mastered it. It is not easy, and requires surgical, not mere manipulative, skill, an exact attention to detail, a knowledge of the anatomy of the septum and the Kirstein light.

While effort is required to learn it, I have nevertheless taught it to many in America who have abandoned the Killian method for it. The latter method may be called properly the concealed or covered one, or operation through the button hole, as compared to mine, which I call the open one or L-flap method. This L-flap is reflected forward and gives room for making a second flap of cartilage underneath it. The L mucosa flap gives easy access to the deeper parts of the convex side of the deflection, while the cartilaginous flap opens a broad way into its concavity. The open operative field thus obtained permits, what I have found a necessity in nearly every case, dissection of adherent portions of the coverings of the deflection from the underlying cartilage and bone by

means of rounded knife-blades of proper form used under the exact guidance of sight, as cutting implements always should be. In this manner I avoid the traumatism, tearing, stretching, violence and perforations incident to the undermining of the covering of the septum by blunt implements where such covering is at all adherent. The open operative field obtained permits operating in the deeper parts of the nose without a long speculum such as Killian uses, the blades of this instrument being much in the way in deflections with pronounced angles. In my method the nose is held open with flat, short retractors held by an assistant, no speculum being used, at the most one additional retractor by the operator. For protection of the flap in the deeper part of the nose a single large retractor, very thin-bladed, is occasionally used. Instead of the haphazard and painful chiselling away of bone, which requires the supplementary violence of breaking out fragments with forceps, I cut away the bony deflection cleanly to its last vestige with cutting bone-forceps, so slender that they enter anywhere, and yet so strong that in their later reinforced pattern they never fail to cut the thickest bone they can seize. Only for very broad bony masses on the nasal floor, too wide for the forceps blades, do I occasionally use the chisel. All of the bony resection is in plain view, and the difficult denudation of the crista incisiva and corner is conducted with proper delicate raspatory curved chisels used in plain sight. My instruments have been criticised as too numerous. The reason for their number is that all of the dull-edged elevators have keen-edged counterparts, so that where dull dissection becomes too difficult the sharp blade of the same form takes its place.

The swivel knife has no place in my instrumentarium and does not fit the method. This objectionable implement has to my knowledge caused the sinking in of the nasal bridge in several cases, and has made the largest perforations ever encountered in the operation. Its swinging blade works in the dark through the button-hole slit, and is of more uncertain guidance than a fixed blade, following its own way instead of the one meant by the operator.

Instead of the needless submucous injection of cocaine solutions used in the Killian method, associated with objectionable pricking through the mucous coverings, I merely use surface application of pure cocaine crystals moistened with adrenalin. I obtain so perfect a local insensibility that I have operated on seven-, nine-, and ten-year-old children without general narcosis, including the resection of extensive bony deviations, and without pain. The patient is always in the half-reclining position on a high operating table.

The flaps are not stitched, the tampon holding them in place, and I always get union by first intention in forty-eight hours, without ever a "hæmatoma." A full account of the method may be obtained in the *Arch. f. Laryngol.*, Prof. B. Fraenkel, and in a booklet published by the *Journ. of Ophthal. and Oto-Laryngol.*, 100, State St., Chicago, Dr. A. H. Andrews, editor.

To conclude with I state that my open method is the best one for all difficult unusual deflections and for children, and is more exact and accompanied by less injury in all directions than the buttonhole method of Killian. I expect, however, that for a long time at least operators will only make use of my more difficult procedure for children and extreme or cicatricial deviations.

Respectfully,

OTTO T. FREER (Chicago).

Abstracts.

PHARYNX.

Emerson, Kendall.—*Acute Poliomyelitis following Tonsillitis.* "Boston Med. and Surg. Journ.," October 15, 1908.

The case was a boy, aged eight, who got very wet in a shower at a time when he was very tired. Next day he had high fever and sore throat. He passed through an attack of tonsillitis, with rather extreme toxic symptoms, cultures showing a mixed infection free from diphtheria bacilli. Recovery was prompt, but five days after he complained of tingling in the left hand. This extended to the forearm next day, and to the shoulder the day following. It was accompanied by headache, becoming more severe and extending down into the posterior cervical region. The third day he was feverish, with the head retracted, and severe pain in the left arm. His attitude and appearance suggested meningitis. It was not until five days later that there was paralysis of the deltoid and upper arm muscles, and two days later there was no power in any of the muscles of the arm and forearm save extremely weak flexion of the fingers. The points of interest in the case are that the tonsils were apparently the point of entry for the toxins, which later affected the cord, and, second, the very gradual onset of the paralysis.

Macleod Yearsley.

Barnes, Harry A.—*Some Points in the Applied Anatomy of the Tonsil.* "Boston Med. and Surg. Journ.," September 24, 1908.

This paper mainly considers the tonsillar crypts and capsule. A full description is given of the development of these parts. Barnes considers that the structural strength of the crypt epithelium is a very important factor in determining the amount of absorption that may take place from the crypt. The crypt epithelium of the child and of the hypertrophied tonsil of the adult offers no great obstacle to the invasion of bacteria or the absorption of their products. The quiescent adult tonsil possesses an epithelium which is a fairly effective defence against bacterial invasion.

Macleod Yearsley.

Clarke, Payson.—*Results in Adenoid and Tonsil Operations: A Study of a Series of Cases.* "Boston Med. and Surg. Journ.," September 24, 1908.

The author deals with 595 cases, the after condition of whom was inquired into. Only 73 (12 per cent.) replied. In 62 cases the result appears to have been good, in 8 fair, and in 3 poor. Mouth-breathing persisted in 35 cases. Four cases of enuresis were not relieved.

Macleod Yearsley.

Goodale, J. L.—*Lympho-sarcoma of the Tonsil.* "Boston Med. and Surg. Journ.," September 24, 1908.

A woman, aged thirty-five; left tonsil. Portion removed and examined found to be lympho-sarcoma. As the soft palate and base of tongue were infiltrated by the growth, she was treated by injections of turpentine into the legs to form abscesses, and injections of staphylococcus vaccine. In five days improvement began, and in less than three weeks the growth had disappeared. The treatment was suggested by the case of a man with Hodgkin's disease, who improved after suffering from a series of boils.

Macleod Yearsley.

NOSE.

Goris (Brussels).—*A Case in which a Mistaken Diagnosis led to the Omission of an Important Operation.* "Zeitschr. f. Laryngol.," vol. i, Part I.

The case was that of a man, aged forty-five, who suffered from severe neuralgia in the right upper incisor teeth. The teeth were removed by a dentist, but were found to be sound. The pain persisted, and a few days later was felt in the upper canine tooth of the same side. This was removed, but without benefit, and subsequently a part of the alveolar margin was chiselled away and the maxillary antrum was opened by a surgeon. The antrum was found to be normal and the pain continued unabated. Analgesic drugs produced only temporary improvement, and the pain, which at first was located only in the front part of the upper jaw, gradually increased and extended so as to involve the whole upper jaw on the right side. A laryngologist whom the patient consulted discovered and removed some spicules of bone which had been left in the wound by the surgeon, but without benefit. It was now concluded that the neuralgia must be of an hysterical nature, and treatment by suggestion was tried. This seemed at first, in combination with morphia and chloral, to be of some benefit, but the pain soon afterwards returned in its original severity, and was now felt chiefly in the lower jaw on the same side. At this stage—five months after the illness began—the patient was first examined by the author, who, on digital examination of the naso-pharynx, detected a tumour growing from its right lateral wall. This had evidently at first exerted pressure on the nerve branches to the incisors, afterwards on those to the other teeth from before backwards, and finally passing into the the zygomatic fossa had involved the inferior maxillary nerve. No operation was attempted and the patient died a fortnight later of cerebral embolism. It is reasonable to suppose that had the meaning of the pain been correctly interpreted early in the case, relief from the pain, if not a cure, could have been effected by operative treatment.

Thomas Guthrie.

Blümel, K.—*Collapse Induration of the Right Apex in Chronic Obstruction of Nasal Breathing, and its Differential Diagnosis from Pulmonary Tuberculosis.* "Münc. med. Woch.," July 28, 1908.

A typical condition of the lungs is found in patients with nasal obstruction, first described by Krönig. Pathologically it is a fibrous induration, with collapse and shrinking of the right apex. It may be differentiated from tubercle by the clinical course and absence of tubercle bacilli. The negative results of all tuberculin tests should be most suggestive. The cause is dust inhalation, setting up catarrh of the larynx, pharynx, trachea and bronchi, resulting from the nasal trouble. The apices of the lungs are involved earlier than the other parts of the lung on account of their anatomical structure.

MacLeod Yearsley.

Baumgarten.—*On Coryfin.* "Klin. Therap. Woch.," 51, 1907; quoted from "Ärtzl Rundschau," 36, 1908

Coryfin is a new menthol ester which can be used to relieve the unpleasant symptoms of a cold; it can be applied to the nose by means of a swab, or else a pledget of wool on which some coryfin has been powdered can be laid within the nose.

Coryfin does not lose its effect after prolonged use. Along with anæsthesin Baumgarten has found it of value in the treatment of tuberculosis of the larynx.

W. G. Porter.

LARYNX.

Hansberg (Dortmund).—*Congenital Laryngeal Webs.* "Zeitschr. f. Laryngol.," vol. i, Part I.

Laryngeal webs of congenital origin are much more uncommon than those which are acquired, and, indeed, only a little more than twenty cases are described in the literature. All of these arose from the anterior commissure and extended backwards for a variable distance, but not farther than the vocal processes. They were much thicker in front than behind and ended posteriorly in a concave border. In two cases in addition to the membrane between the cords a second was present at a slightly higher level. Suggestions of web formation are not infrequently met with in the form of a curved instead of an angular anterior commissure.

The author's case was that of a female child, aged eight days, who had been quite voiceless since birth, and had shown signs of respiratory obstruction. It was not possible to obtain a view of the larynx but some congenital malformation was suspected. During the first four months of life the respiratory obstruction gradually increased, and eventually necessitated the performance of a tracheotomy which was delayed until the last possible moment. This was followed a fortnight later by thyrotomy under cocaine and supra-renin. There was found a thick firm membrane beginning in front at, or below, the anterior commissure, adherent for a short distance to the right vocal cord, and extending backwards and upwards on the right side to end just in front of the arytenoid at about the level of the ventricular band. The membrane was dissected out and the laryngeal wound closed. Beyond a rise of temperature for a few days, which occurred also after the tracheotomy, the child displayed no adverse symptoms. The cannula was soon left out, and six weeks later healing was complete and the voice was loud, though a little hoarse. The child has since developed excellently and remains perfectly well.

This case differs from others hitherto reported in that the membrane was asymmetrical, being attached to only one side of the larynx. It is further of interest as an example of the survival of a child of four months after tracheotomy and thyrotomy.

Thomas Guthrie.

Gerber (Königsberg).—*On so-called "Laryngitis nodulosa."* "Zeitsch. f. Laryngol.," vol. i, Part I.

From observation during recent years of 110 cases of this condition the author has reached the following conclusions: (1) The term "singers' nodes" is misleading; in only 18 of the cases was there a history of more than ordinary use of the voice, either in speaking or singing. (2) It is at least doubtful whether, as has been asserted, females are more often affected than males. Of the 110 cases 63 were females and 47 were males, but this difference is not so great as it appears, for it must be remembered that throat clinics are attended by many more women than men. (3) A large proportion of the cases are in children. Of those observed as many as 47 per cent. were under fifteen years of age. (4) The condition presents two distinct forms, namely, the rounded nodule and the triangular bulging of the cord or saccule. The latter is by far the more common, especially in otherwise healthy children, in whom it is the most frequent cause of chronic hoarseness. This form is not amenable to surgical treatment.

Thomas Guthrie.

THYROID.

W. O. Woltke.—*Specific Therapy in Basedow's Disease.* "Deut. Ärzte. Zeitung," 1908, Heft. 16 and 17.

The author reports nine cases which he treated with anti-thyroidine, that is, a serum obtained from animals in which the thyroid has been excised. In some cases also the milk of a goat was given in which the thyroid gland had been removed. The most marked effect that was observed was a diminution in the size of the swelling in the neck. The effect on the palpitation was not so great, and the degree of exophthalmos remained much the same. In nearly all the cases the body-weight increased very considerably. Of course relapses must be expected, and permanent results can only be looked for after a treatment extending over two or three years. A great disadvantage to this method of treatment is the expense involved in preparing the serum.

W. G. Porter.

EAR.

Cobb.—*The Menace of the Swimming Tank.* "Boston Med. and Surg. Journ.," July 2, 1908.

The author describes cases of ethmoiditis and acute otitis media directly caused by diving into the swimming tank, and considers they are not due to infection of nose, throat, or ear by contaminated water, but to putting the head under. Histories are given of three cases. I have recently seen a case in which double aural furunculosis was directly traceable to the swimming bath; probably, therefore, infection from the water plays a not unimportant part in such cases.—M. Y.]

Marleod Yearsley.

Bourgeois, H.—*Otitic Thrombo-Phlebitis of the Cavernous Sinus; Recovery.* "Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx," October, 1908.

A man, who had suffered since infancy from suppuration of the right ear, was seized with fever and violent pains of the corresponding side of his head. When seen by the author on August 9, 1907, he was very exhausted, answering questions badly, but the intellect was intact. The meatus was filled with pus; after cleansing, the drum-head was found to have been destroyed, and the tympanum crowded with bleeding granulations. The mastoid was very tender on pressure, especially so over the antrum, but there was neither œdema nor redness of the integument. A painful swelling was situated at the upper part of the sterno-mastoid on the same side. The eyes were proptosed, and the upper lids red and œdematous, the pupils were much dilated and sluggish; movements of the globes were extremely limited, especially in an outward direction. Rectal temperature, 38.6° C.; there had been no rigor. The case was diagnosed as one of thrombo-phlebitis of the cavernous sinus and sub-sterno-mastoid abscess. The radical mastoid operation was performed the same evening; the bone around the antrum was in a state of osteitis, extending to the petrous bone and lateral sinus. On freely exposing the latter its wall was seen to be thickened and grey; on incising it, blood flowed freely; there was no thrombosis. The cervical swelling was incised, pus absent. For three days following the operation there was a slight amelioration of the pains. The temperature oscillated between 38° and 39° C. On August 14 and the following day rigors occurred; tem-

perature 40.9° C., and the afore-mentioned ocular symptoms became more pronounced. A double orbital phlegmon was feared. August 23, the sub-sterno-mastoid swelling formerly opened now fluctuated; on incising it an abscess the size of a pigeon's egg was found, situated deeply, and extending inwards towards the pharynx. August 24, temperature 37.5° C. morning, 37.8° C. evening. The temperature remained high with oscillation during the next four days, but the ocular condition underwent a marked improvement. September 10, right-sided pleural effusion developed, and on the 13th 250 grammes of purulent fluid were aspirated; this afforded only slight relief, the fever continued. Thoracotomy, performed on the 15th, revealed the pleural cavity crowded with false membranes; no fluid present. On September 26 a large pulmonary abscess suddenly burst into the bronchi and pleura. Convalescence set in immediately, the temperature next day being 37° C. Pleuro-pulmonary suppuration lasted till November 11. By this time the general health had become excellent, and the only ocular trouble now was slight limitation in the movement of abduction of the right eye. The auricular wound was slow in recovering, osteitis with granulations persisted at the level of the facial spur and inner wall of the aditus and antrum. At the end of January a sequestrum, the size of a pea, was removed, after which an uninterrupted recovery followed. Some of the possible routes of infection of the cavernous sinus in cases of otorrhœa are given; in this particular instance it was through the carotid venous plexus which receives some of the tympanic veins.

With regard to treatment, the author was content in disinfecting the auriculo-mastoid focus by the radical operation, seeing the difficulty attending surgical intervention on a bilateral phlebitis of the cavernous sinus. He is unable to say what influence intra-venous injections of collargol, which had been practised sixteen times between August 17 and September 13, had in the case.

The relatively attenuated virulence of the infection, coupled with extraordinary resisting power on the part of the patient, were important factors in bringing about recovery.

H. Clayton Fox.

BOOK RECEIVED.

Goodall and Washbourn. *Manual of Infectious Diseases*. Second edition, revised by E. W. GOODALL, M.D. (33 plates.) London: H. K. Lewis.

CENTRAL LONDON THROAT AND EAR HOSPITAL.—The annual dinner of the medical staff and students of the Central London Throat and Ear Hospital was held at the Trocadero Restaurant on October 16, Dr. Dundas Grant in the chair. The principal guests were Dr. John Macintyre, of Glasgow, who delivered the inaugural address at the beginning of the winter course of lectures, and Dr. Otto Freer, of Chicago, together with various members of the staffs of all the throat and ear hospitals in London.

INDEX TO VOLUME XXIII, 1908.

SUBJECTS.

	PAGE
ABSCCESS in frontal lobe (Cargill, Turner, Thomson)	379
——— of right temporal lobe (Paul Gilbert)	582
Accessory sinuses diseases in scarlet fever (Killian)	690
——— of nose, complications in diseases of (von Eicken)	691
Acoumeter, millimetric (Tretöp)	419
Adenoid subjects, Pignet's numerical index in (Gaullicur l'Hardy)	171
——— and tonsil operations (Payson Clarke)	704
Adenoids and tonsils (H. G. Langworthy)	265
——— long-neglected (Donelan)	252
——— operation for (Glover)	417
Adenotome, new (H. J. Davis)	192
Adenotomy, modification in classical technique of (Lermoyez)	123
Adhesion of soft palate to pharynx (Hill)	392
Air-ventilator for hot-air apparatus (Lermoyez and Mahu)	124
Anæsthesia, local, in operation for suppuration of antrum (Luc)	418
——— general, by ethyl chloride (Piaget)	424
Anæsthetics, general, for short operations (Bonain)	418
Angioma (Phillips)	164
——— large, palate and pharynx, cured by electrolysis (Paul Laurens)	53
——— of right tonsil (A. Wylie)	320
——— of velum palati and pharynx (Paul Laurens)	121
——— pulsating, of nose (W. D. Harmer)	391
Angio-neurotic œdema (Henry Bazett)	219
Angina Ludovici, operation for (Stuart-Low)	382
Anosmia (Clayton-Fox)	17
Anterior nares, complete occlusion of (R. H. Craig)	396
Antral disease (Herbert Tilley)	607, 623
Antritis, chronic frontal (Luc)	566
Antrotomy, early (Henry Caboché)	453
Antrum of Highmore, calculus (E. Oppikofer)	62
——— suppuration, bacteriological examination (K. W. Goadby)	626
Aphonia (Donelan)	190
——— (de Havilland Hall)	189
Arterio-sclerosis, adrenalin in causation of (F. E. Hopkins)	516
——— ear symptoms in (John J. Kyle)	115
Arytænoid cartilage, carcinomatous growth of (Arthur Evans)	689
——— necrosis of (Harold Barwell)	146, 182
——— swelling of (W. H. Kelson)	320
Asthma, bronchial, bronchoscopy in (F. Nowoiny)	219
Auditory nerve, tumours of (W. Kustner)	174
Aural discharges, clinical pathology (Wyatt Wingrave)	302, 317
——— ———— discussion	332
——— disturbance in herpes of the trifacial (Escat)	125
Auricle, botryomycosis of (Pasquier)	567
——— function of (Geigel)	128
——— hyperplasia of (Furniss Potter)	332

	PAGE
Basedow's disease (W. O. Woltke)	707
Basilar membrane, "piano-string" theory of (W. Sohler Bryant)	455
Bardella bandages (Down Bros.)	175
Baritone voice, girl with (Cyril Horsford)	149
Bezold's mastoid empyema (W. S. Syme)	327
Bier's method in oto-rhino-laryngology (Gaudier)	420, 526
Bleeding polypus of the nose (W. H. Kelson)	93
Blood-corpuscles, red, in adenoid subjects (Enrico Tormene)	266
Brain, abscess of, in connection with frontal sinusitis (Paul Laurens)	339
—— of otitic origin (Gaudier)	337
—— complications of nasal diseases (Onodi)	564
Branchial sinus from neck into external auditory meatus (Fagge)	198
Branchiogenetic cyst (Thomas J. Harris)	574
Breast-bone of chicken in larynx (F. A. Rose)	39
"Bridle" formation of the larynx (Herbert Tilley)	78
Bronchoscope, œsophagoscope, and gastroscope (Halstead)	445
Calculus from tonsil (Mignon)	419
Calmette's reaction and von Pirquet's cutaneous tuberculin test (Lenhartz)	127
Caries of middle ear (G. H. Powers)	399
Caseous sinusitis (Collet)	420
Canterisation of inferior turbinated bodies, fatality (Theoris)	343
Cavernous sinus thrombosis (Henry Hanna)	364
—— septic thrombosis of (J. A. Stucky)	529
Celloidin, thin, sections through the temporal bone (Hegener)	444
Cellulitis, extensive, of the neck, further notes (Abercrombie)	44, 680
Central London Throat and Ear Hospital (annual dinner)	708
Cervical fistula (Dundas Grant and Dan McKenzie)	150
—— tumours (Andrew Wylie)	513
Cervico-œsophageal fistula (Moty)	267
Chair for consulting room (F. Schäfer)	635
Chondromata of the nasal cavities (W. Uffenorde)	269
Chorea, naso-pharyngeal cause for (Ponthière)	417
Cleft palate (Truman W. Brophy)	165
Cocainism through nose (A. Hautant)	338
Congestion of right vocal cord (Herbert Tilley)	79
Constriction of trachea, fibrous and eccentric (Herbert Tilley)	94
Coryfin (Baumgarten)	705
Crico-tracheal polypus removed by direct tracheoscopy (Guisez)	338
Czernak, autograph letter (Jobson Horne)	251
Deaf-mute apparently regaining hearing (L. A. Lawrence)	110
Deaf-mutes, Bárány's test to (Alex R. Tweedie)	592
Deaf-mutism (Castex)	424
Deafness arising in the course of acute osteo-myelitis (Siebenmann)	222
—— bilateral central (Jules Glover)	398
—— chronic middle-ear (Sohler Bryant)	133
—— from epidemic cerebro-spinal meningitis (Cunningham)	193
—— sudden, during treatment for tertiary syphilis (Lake)	104
Demonstration of specimens (Wm. Milligan)	114
Diagnosis, case for (Buckland Jones)	392
—— (Felix Semon)	677
—— mistaken, which led to omission of operation (Goris)	705
Diathetic conditions in diseases of throat and nose in children (Kerley)	54
Digital examination of nose (Dan McKenzie)	248
Diphtheria complicated by acute purulent otitis media, mastoiditis, and infective sinus thrombosis (P. D. Kerrison)	221
—— formic acid in the treatment of (C. B. Ker and D. H. Croom)	580
—— post-operative, prophylaxis of (H. A. Barnes)	61
—— relapses in (J. D. Rolleston)	61
—— of the skin (A. B. Slater)	223

	PAGE
Discharge in middle-ear and maxillary sinus suppuration, cytological examination (John M. Darling)	504
Disinfection of hands (Grassmann)	224
----- of skin (v. Brunn)	279
Ductus cochlearis, dilatation of (E. Ruttin)	434
Ear-models, demonstration of (Denker)	431
----- (Schönemann)	432
Ear operations, wound clip for (Fr. Müller)	440
----- stand for operative practice on (Kirchner)	443
Editorial: British Medical Association at Sheffield	457
----- Dr. Otto Freer and submucous resection of the septum	641
----- examination of nose and throat, recent methods	587
----- German Otological and Laryngological Societies	345
----- labyrinthine suppuration, operative surgery of	477
----- tests	587
----- laryngeal paralysis in goitre	65
----- laryngostomy for laryngeal stenoses	585
----- retirement of Professor Politzer	129
----- Schrötter, the late Professor	233
----- Sheffield Meeting of British Medical Association, "Other Sections"	401
----- submucous resection of nasal septum in children	234
Empyema of mastoid process in acute suppurative median otitis (Arthur Af. Forselles)	276
Endoscopic tubes, principles of illuminating (Brünnings)	632
Endothelioma removed from hard palate (Dan McKenzie)	150
----- from œsophagus and trachea (Betham Robinson)	184
Epidemic, pneumococcal catarrhal disease (H. C. Beck and W. R. Stokes)	126
Epiglottitis, cysts, abscesses and œdema of (Henry L. Swain)	696
----- disease of the (Jobson Horne)	93
Epistaxis, from pulsating growth of middle turbinate (Alex. Tweedie)	36
----- recurrent, in nasal epithelioma (Stuart-Low)	687
Epithelioma of ear (Hunter Todd)	112
----- of epiglottis and half of larynx (Dundas Grant)	191
----- extrinsic, of larynx and hypo-pharynx (Dundas Grant)	674
----- of fauces (Dundas Grant)	151
----- of left nasal fossa (Guisez)	564
----- of the left tonsil, faucial pillar, and uvula (Dundas Grant)	90
----- of left vocal cord (Felix Semon)	676
----- (Luc)	566
----- early, of left vocal cord (Herbert Tilley)	149
----- of middle ear, traumatic (W. Milligan)	199
----- of pharynx, œsophagus, and larynx (Wm. Hill)	685
----- of tongue and fauces (Chichele Nourse)	147
Ethmoidal and (?) sphenoidal suppuration (James Donelan)	390
----- sinusitis, closed (Vernieuwe)	125
Eustachian tube, foreign body in (Otto Piff)	454
Examination, direct, of larynx, trachea and œsophagus (Brown Kelly)	514
Exophthalmic goitre (J. M. Jackson and L. G. Mead)	296
Exostosis of internal auditory meatus (Manasse)	437
Extra-dural abscess induced by middle-ear disease (Rafael Spira)	14
Fauces, fenestration of anterior pillars (P. Watson Williams)	213
Faucial tonsil, modern surgery of (Thomas J. Gallaher)	151
----- (Robert C. Myles)	119
Fibroma removed from left vocal cord (Cyril Horsford)	85
----- (L. H. Pegler)	89
Fistula of right external semi-circular canal (A. Hautant)	565
Fistulous opening in the middle line of the neck (Dan McKenzie)	38
Foreign body in the ear (L. Lawrence)	332

	PAGE
Foreign body, microscopic specimen and drawing of (Macleod Yearsley)	103
Foul breath (A. Wylie)	263
Fracture through the temporal bone (Arthur Cheate)	107
Frontal sinus and affections of the eye (Homer Dupuy)	268
——— cases, two unusual (J. Price-Brown)	449, 535
——— cyst of (Clement F. Theisen)	449
——— disease, stereoscopic photographs (W. S. Syme)	314
——— (J. Price-Brown)	449
——— infundibulum, use of bougies for dilating (Dundas Grant)	513
——— mucocele of (F. J. Steward)	185
——— (StClair Thompson)	143
——— two operations (H. Tilley)	261
——— operation, double, results of (StClair Thomson)	47
——— osteoplastic method of operating on (Watson Williams)	553
——— fracture of walls (J. Gay French)	684
——— sinusitis, acute fistulous (Canzard)	209
——— bilateral (Chichele Nourse)	86
——— disease, suppuration in ear (Gallemaerts, Delsaux)	271
Fronto-ethmoido-maxillary suppuration, acute (Luc)	566
Fulguration by the De Keating Hart method (Wiesner)	279
——— in laryngology (v. Eichhorn)	689
Galvanic treatment in cases of difficulty in hearing (Ernst Urbanschitsch)	443
Geniculate ganglion, herpetic inflammations of (J. R. Hunt)	173
Glyco-Thymoline (Kress), Birmingham Nasal Douche (Thos. Christy & Co.)	176
Goitre, treatment of, by removal (James Berry)	21
Grafting, partial (J. Stoddart Barr)	492
Gumma of the larynx (Lawrence Jones)	80
Gummatous infiltration, diffuse, of half of nose (Horne)	48
Hæmatoma with abscess of septum (Dan McKenzie)	258
Hæmophilia (Cauzard)	210
Hæmorrhage following removal of tonsils (E. A. Crockett)	265
——— following quinsy (James E. Newcomb)	289, 699
Hay fever, treatment of (R. Grace)	637
Hearing, organ of, malformation (Hugo Frey)	435
——— of railway employees, examination of (Putelli)	223
Hydrocephalus, acute internal (S. R. Scott)	455
Hyoïdo-thyrotomy (Glover and Sébileau)	426
Hypertrophy of nose, surgical treatment (Jules Broeckaert)	271
Hypertrophia lateralis lingue (H. L. Wagner)	514
Hypo-pharyngoscopy (Harold S. Barwell)	169
Hypo-pharynx, carcinoma (Körner)	689
Hysteria of ear (Christian R. Holmes)	58
——— with very unusual laryngeal manifestations (Sir Felix Semon)	384
Injuries, experimental acoustic (Yoshii and Siebenmann)	433
Injury to pharyngeal portion of Eustachian tube (W. S. Syme)	328
Instrument to facilitate intra-laryngeal operations (Horsford)	85
——— for passing suture through epiglottis (Cyril Horsford)	260
Interarytenoid and subglottic infiltration (Herbert Tilley)	678
Intra-nasal hypertrophy, headaches and sweating (Donelan)	142
Intra-tracheal injections in diseases of lungs (Galebsky)	125
Intubation, prolonged (W. K. Simpson)	697
Iodide treatment of tubercular and lupoid ulcers (Jacques)	419
Jugular vein, operative exposure of bulb (J. Tandler)	277
Keratosis laryngis circumscripta (W. G. Porter)	310
Khartoum, fire at Gordon College	344

	PAGE
Killian's radical operation for chronic empyema of frontal sinus (L. Mader)	62
— operation for chronic empyema of frontal sinus (Herbert Tilley)	94
— for chronic suppuration of frontal sinus (Dundas Grant)	324
Labyrinth, disturbance of equilibrium (Krotoschiner)	219
— extirpation of (Sydney Scott)	102
— human, histological preparations (Sydney Scott)	200
— injury by influence of rays (Marx)	134
— non-purulent inflammations (Voss)	435
— pathological conditions (Albert Gray)	199
— purulent affection (Clarence J. Blake)	117
— of reptiles (stereoscopic photographs) (Gray)	501
— sequestra in middle-ear carcinoma (Nager)	435
— from a case of necrosis (Macleod Yearsley)	331
— suppuration, microscopic preparations (Ferdinand Alt)	433
Labyrinthine suppuration (Macleod Yearsley)	199
— v. Stein's symptom (W. P. Eagleton)	63
Labyrinthitis, operative surgery (S. Ernest West and Sydney Scott)	201
— circumscribed, specimens (Siebenmann and Yoshii)	433
Laryngeal case for diagnosis (Andrew Wylie)	149
— complications of typhoid fever (W. Rieser)	272
— disease (Frederick Spicer)	46
— for diagnosis (Scanes Spicer)	46
— (Watson Williams)	375
— growth (K. Donelan)	251
— for diagnosis (Stanley Green and Lambert Lack)	256
— intrinsic (Johnson Horne)	688
— growths, innocent, treatment by galvano-cautery (A. Wylie)	217
— leukoplasmia (Laurens)	421
— paralysis (Clayton Fox)	319
— in goitre (Eugene Felix)	126
— spasm in the adult (L. Neufeld)	397
— stenosis due to amyloid degeneration (G. Strazza)	271
— surgical treatment (E. von Navratil)	238
— stridor, congenital (Dundas Grant)	321
— symptoms in Friedreich's disease (Collet)	419
— tuberculosis, Marmorek's anti-tuberculous serum (G. A. Weill)	54
— local treatment with mono-iodised guaiacol (Delacour)	452
— ulceration (P. Watson Williams)	84
— webs, congenital (Hansberg)	706
Laryngectomy, partial (Castex)	421
Laryngitis nodulosa (Gerber)	706
Laryngology, retrospect, 1907	1
Laryngoscopy, bronchoscopy and oesophagoscopy, direct (E. B. Waggett)	514
— and tracheoscopy, direct (Guisez)	565
Laryngostomy and tracheo-laryngostomy (Sargnon and Barlatier)	365, 411, 475, 649
Larynx, abscess of (T. Melville Hardie)	572
— and accidents of occupation (G. Dupond)	453
— cancer of (Biaggi and Gavello)	218
— extrinsic epithelioma of (Dundas Grant)	261
— and fauces, lupus of (Dundas Grant)	190
— leukæmic affection of; preparations (A. Meyer)	634
— malignant disease of (Dan McKenzie)	383
— tumours of (Teets and Shearer)	274
— and upper end of oesophagus, direct examination (H. P. Mosher)	273
— severe parasyphilis of (A. Castex)	207
— papillomata of, in little children (Van den Wildenberg)	173
— polypoid growth from (H. Betham Robinson)	255
— and trachea, treatment of chronic stenosis (J. Rogers)	273

	PAGE
Larynx, tubercular perichondritis of (Massier)	420
—— tuberculosis, with perichondritis (Hill)	151
—— large villous tumour of (Lammois)	421
Lateral sinus disease (W. S. Syme)	325
—— infection of (W. Permewan)	487
—— peri-sinusitis of (Mahu)	423
—— thrombosis, pathological researches (Uffenorde)	442
—— thrombo-phlebitis of (Cornet)	568
Leprosy of the larynx, specimen (Arthur Evans)	78
—— showing lesions in soft palate and pharynx (StClair Thomson)	188
Leprous lesions in nasal fossa, palate and larynx (Castex)	49
Lumbar puncture, cell enumeration (Ernest Jones)	526
Lupoid ulcer on floor of vestibule of nose (Dundas Grant)	321
Lupus of epiglottis (Jobson Horne)	319
—— erythematous (Lambert Lack)	688
Malignant growth behind cricoid (T. W. Bond)	322
—— soft, of turbinated body (Cresswell Baber)	98
Mastoid, epithelioma, cured by X-rays (Labarrière)	419
—— operation, preservation of membrane and ossicles (Turner)	490, 491
—— radical, unusual sequel (W. G. Porter)	491
—— operations, periosteal flap for use in (G. A. Leland)	525
—— post-operative methods of Eemann and Roy (H. Luc)	335
Mastoiditis with aberrant cells (Raoult)	425
—— with brain complications (F. Knause)	455
—— and diabetes (Furet)	50
—— acute, in a diabetic (Luc)	51
—— in diabetic subjects (John D. Richards)	278
Maxilla and mandible, bony outgrowths from (W. H. Kelson)	259
Maxillary antrum, adeno-carcinoma of (Lee M. Hurd)	162
—— foreign body in (Chavanne)	417
—— malignant disease (C. A. Parker)	679
—— operation (Stuart-Low)	148
—— methods of opening (John O. Roe)	570
—— suppuration in (StClair Thomson)	557
—— (Logan Turner)	559
—— chronic suppuration, treated through meatus (Grant)	90
—— sinus, permeal exploration of (Helat)	525
—— in relation to teeth (A. S. Underwood)	620, 623
—— sinusitis and gangrene of lung (Labarrière)	418
Mechanical drill in operations on ear and nose (Vacher)	418
Medical inspection of school-children, compulsory (Wilkinson)	505
Medicine, history of, in Province of Quebec (Birkett)	444
Megaphone (Cresswell Baber)	128
Ménière's disease (Lammois and Chavanne)	422
—— depending on inflammation of nasal sinuses (Burger)	279
Meningitis, otitic (Sydney Scott)	502
—— septic, treatment (Laurens)	423
—— suppurative, of otitic origin (Claué)	398
—— tubercular, cured by injecting Beranech's tuberculin (A. Vernet)	175
—— subsequent to mastoid operation in tuberculous subject, lumbar puncture (Percy Jakins)	34
Meningo-encephalitis, serous (A. Blau)	221
Menses, sudden cessation of, with angina (Zella St. Bl. Schlbach)	266
Mergal, treatment of syphilis with (D. Sommerville)	279
Middle-ear apparatus for hearing (K. K. Schaeffer and H. Sessons)	429
—— development of (Thos. Guthrie)	541
—— suppuration, chronic, conservative treatment (O. Körner)	426
—— — (Scheibe)	427
—— intercranial complications (C. A. Ballance)	545
—— — (A. L. Whitehead)	549

	PAGE
Middle-ear suppuration; phlebitis of lateral sinus; cerebellar abscess (McBride)	483
Mucocoele of accessory nasal sinuses (Logan Turner)	581
——— of anterior ethmoidal cell (Dan McKenzie)	315
Myeloid sarcoma of right nasal fossa (Koenig)	53
Narcosis with warm chloroform (Haun)	128
Nares, anterior, complete closure of (Stuart-Low)	147
——— partial occlusion by cutaneous web (Geo. K. Grimmer)	183
Naris, right posterior, congenital occlusion of (Harold Barwell)	684
Nasal catarrh, hypertrophic (C. A. Bucklin)	171
——— cavities, infiltration of (C. A. Parker)	257
——— fossae, bilateral growths on floor of (Koenig)	569
——— headaches, sphenopalatine ganglion in (G. Sluder)	524
——— impotence, functional (R. Foy)	337
——— obstruction from a cyst (Davis)	261
——— obstruction (de Santi)	258
——— ——— almost complete (H. J. Davis)	389
——— ——— collapse induration of apex, diagnosis from pulmonary tuberculosis	705
——— polyp, œdematous (Wendell C. Phillips)	163
——— polypi, microscopic sections (Watson Williams)	144
——— septum, resection of (Bouvillos)	417
——— ——— treatment of deformities of (Kretschmann)	141
——— sinuses, primary tumours of (Citelli and Bellotti)	270
——— diseases in singers (Trétirop)	419
——— syphilis (Herbert Tilley)	48
Naso-pharyngeal fibrous polypi (Jacques)	417
——— polypi, point of insertion (Texier)	417
——— polypus (E. Jauquet)	124
——— ——— (Cauzard)	207
Naso-pharyngo-laryngeal syndrome (A. Siere and L. Vacquier)	394
Naso-pharynx, anomalous folds in (J. P. Clark)	452
——— atresia of (Coubro Potter)	77
——— epithelioma of (Dupond)	418
——— remarkable anomaly of (Jurasz)	635
Needles for paracentesis, means for keeping aseptic (Lernauoyez)	122
Negative pressure in oto-rhinology (H. Halasz)	277
Neoplasm, intrinsic, of left vocal cord (Scanes Spicer)	255
Nerve-deafness, unilateral (Dundas Grant)	201, 330
——— ——— hysterical (Dundas Grant)	201, 329
Nodules, symmetrical, on cords of a boy (Harold Barwell)	79
Noise apparatus (Robert Bárány)	363, 428
Non-tuberculous intra-nasal and post-nasal abnormalities (W. C. Rivers)	215
Nose, chronic inflammatory œdema of submucous tissues (J. S. Fraser)	402
——— foreign bodies, empyema of antrum (Krebs)	216
——— operation for depressed fracture (T. G. Ouston)	557
——— sarcoma of (Chichele Nourse)	146
——— tuberculosis of (Lindt)	439
——— ulceration of (Kelson)	151
Nystagmus in deaf-mutes (Tweedie)	552
Œsophageal diverticulum (Tilmann)	343
Œsophagoscopy (Canyard)	420
——— actual results of (Guisez)	459
——— extraction of artificial dentures by (Guisez)	422
——— from a diagnostic and therapeutic point of view (M. Guisez)	267
——— and bronchoscopy, instruments (Cauzard)	50
Œsophagus of a child, open safety-pin in (J. S. Manson)	223
——— ——— removal of open safety-pin (D. R. Paterson)	223
——— circular electrolysis in cicatricial contractions (Guisez)	423

	PAGE
Œsophagus, painful spasm of (Bichaton and Blum)	453
——— spasms of (Guisez)	423
Optic neuritis (H. M. Fish) (<i>concluded</i>)	26
——— in diseases of middle ear (J. S. Barr and J. Rowan)	174
Ossicles, model showing mechanism of (Denker)	435
Osteomata of accessory sinuses (Marx)	439
Otalgia (J. R. Hunt)	277
Otitic brain abscess (E. B. Dench)	275
——— meningitis (A. Knapp)	220
——— purulent sinus thrombosis without fever (H. Schroeder)	221
——— septicæmia (Chatallier)	211
——— thrombo-phlebitis of cavernous sinus (Bourgeois)	423, 707
——— pyæmia (Chatellier)	212
Otitis media, acute, statistics and treatment (Lermoyez)	422
——— catarrhalis chronica (W. Sobier Bryant)	164
——— purulent, in secondary syphilis (Adolph Bronner)	197
——— with involvement of sigmoid sinus (J. G. Connal)	343
Otogenic facial paralysis (Ferdinand Alt)	438
Otology, retrospect (Dundas Grant and Chichele Nourse)	6
Oto-sclerosis, anatomical condition of foot-plate of stapes in (Politzer)	432
——— and auto-intoxication (Cornet)	424
——— microscopical demonstration (Brühl)	433
Ozæna, treatment of (Gault)	417
——— unilateral (Mermod)	637
Pachydermia laryngis, pathogenesis of (Horne)	383
——— specific (StClair Thomson)	142
Palate, hard, form of (Harris P. Mosher)	447
——— soft, adhesion to the pharynx (Grossard)	210
——— perforation (P. Abercrombie)	681
——— venous angioma (Hunter Tod)	187
Pan-sinusitis, models of operations (Watson Williams)	689
Papilloma of larynx in children (Payson Clarke)	575
——— sub-glottic (Thos. J. Hardie)	573
Paraffin, cold, external prosthesis with (Mahu)	124
——— in nasal prosthesis (R. Leroux)	171
——— prosthesis in rhinology (O. Seifert)	215
——— subcutaneous injection, in nose (Walker Downie)	563
Paralysis, oculo-motor and recurrent (Körner)	633
——— crossed abducens in case of cerebellar abscess (D. R. Paterson)	197
——— of sixth cranial nerve (J. Stoddart Barr)	553
——— of palate and vocal cords in tabes dorsalis (C. M. H. Howell)	214
——— recurrent and abductor, central causes (Gleitsman)	517
——— ——— peripheral causes (Delavan)	518
Paralysis, recurrent and abductor, symptomatology (Clarence C. Rice)	519
——— ——— diagnosis and treatment (W. E. Casselberry)	520
Paresis, functional, of palate and cords (E. A. Peters)	45
——— of vocal cord (Dan McKenzie)	37
Pathological exhibits	166
Pemphigus of mucous membrane (Bichaton)	424
Periostitis of temporal, new method of diagnosis and treatment (Luc)	423
Peritonsillar abscess (Jacques)	419
Petrous temporal bone, decalcification (Herschel)	443
Pharyngeal lymphoid tissue, hypertrophy (Nobécourt, Tixier)	636
——— paræsthesia (Boulay and Le Marchadour)	420
Pharyngitis, chronic (R. M. Niles)	169
Pharynx and larynx, extensive cicatricial changes (Betham Robinson)	184
——— lower, benign tumour of (P. Magne)	580
——— and naso-pharynx, chronic inflammation (Peter McBride)	505
——— resection, with laryngectomy (Sampson Handley)	265
——— pulsating vessels in (J. G. Connal)	130

	PAGE
Phlegmons of neck of bucco-pharyngeal origin (A. Fallas)	125
Piriform sinus, tumour (Paul Laurens)	122
Pneumococcal invasion of the throat (Semon)	636
Pneumococcal otitis media (W. H. Bowen)	275
Politzer bag, electrical attachment (Blodgett)	154
Polyp, nasal, preparations showing development (J. S. Fraser)	564
——— from naso-pharynx (Lavrand)	417
Polypus, bleeding, of septum (C. A. Parker and L. H. Pegler)	87
——— post-nasal (Dundas Grant)	316
——— specimen (Herbert Tilley)	377
Posterior nares, occlusion (Hunter Tod)	332
Preparations illustrating diseases of trachea (Jobson Horne)	95
Presidential address (Peter McBride)	98
——— abstract (Dundas Grant)	674
Pseudo-Bezold mastoiditis (Chatellier)	212
Pyæmia of otitic origin (Paul Laurens)	569
“Radical” operation, preservation of membrane and ossicles (Grant)	201
Radiograph to show orbito-ethmoidal and frontal cells (Thomson)	144
Radiography in the diagnosis of accessory sinus disease (W. Albrecht)	268
Report of cases (Gordon King)	638
——— of Morbid Growths Committee	77
Reports from private clinic (Schönemann)	224
Retro-auricular openings, closure of (Hartmann)	440
Review: Beiträge zur Anatomie, Physiologie, Pathologie und Therapie des Ohres, der Nase und des Kehlkopfes (Passow and Schaeffer)	283
——— Consumption (H. Warren Crowe)	527
——— Corps Thyroïde, Myxœdèmes, Thyroïdites et Strumites. Goitres, Cancers Thyroïdiens (Léon Bérard)	584
——— Cosmetic Surgery (Charles C. Miller)	490
——— Diagnosis in Diseases of the Throat, Nose, and Ear (Dan McKenzie)	226
——— Diseases of Ear, Nose and Throat (John Johnson Kyle)	528
——— Diseases of Nose and Throat (Herbert Tilley)	399
——— Geschichte der Laryngologie in Würzburg (Otto Seifert)	225
——— Hygiene and Therapeutics of Diseases of Mouth (Cruet)	64
——— Maladies de la Gorge, du Larynx, des Oreilles et du Nez (B. J. Moure and A. Brindel)	456
——— Maladies du Nez et du Larynx (Cartaz, Castex and Barbier)	526
——— Mastoid Region, Topographical Surgical Anatomy of (H. E. Kanasugi)	640
——— Manuel des Maladies du Tube Digestif (Part I)	285
——— Medical Annual (twenty-sixth year)	284
——— Nisbet's Medical Directory	175
——— Nose, Diseases of (E. B. Waggett)	344
——— Ophthalmoscope, vol. vi, no. 4 (Sydney Stephenson)	283
——— Otology, Handbook of (Bezold and Siebenmann—English trans- lation by Hollinger)	280
——— Pharmacopœia, Extra (Martindale and Westcott)	649
——— Sinusiti Frontali (Robert Falcone)	282
——— Treatment, On (Harry Campbell)	583
——— Vignettes of the Regency (Wm. Toynbee)	282
Rheumatism through tonsillar infection (George B. Hope)	698
Rhinitis, atrophic (James Adam)	563
Rhinology, retrospect, 1907	5
Rhinometry, clinical (Escat)	425
Rhinoscleroma (Stuart-Low)	687
Röntgen photography (Groedel and Horn)	279
——— rays in diagnosis of stricture of œsophagus (Bertram Dawson)	125
Rosenmüller's fossæ (F. P. Emerson)	399

	PAGE
Saddle nose, repair of (J. Gibb Wishart)	396
Safety-pin closer (Chevalier Jackson)	165
Saliva, loss of oxydase of (P. Hellat)	395
——— in nose (von Eicken)	692
Salpingoscope (Voss)	441
Sarcoma of upper maxillæ (Arthur Hutchison)	81
——— of nasal orifice and frontal sinus (Raoult)	416
——— of nasal septum, radical operation (Goris)	633
——— specimens (Jobson Horne)	314
Schadle, Dr., obituary notice	456
Schrötter, the late Professor	233
Screen, anti-tubercle (Robert Levy)	166
Septal deflection, extreme form (Harold Barwell)	40
——— deviations (P. J. Mink)	270
——— perforations (Chevalier Jackson)	215
Septico-pyæmia of otitic origin (Raoult)	425
Septum, deflected (Cathcart)	688
——— deviation (StClair Thomson)	382
——— extreme deviation of (H. J. Davis)	188
——— deviated, and phthisis (Hamilton Burt)	322
——— and naso-pharynx, malignant growth of (Watson Williams)	373
——— primary tuberculosis of (Joseph H. Abraham)	163
——— nasal, submucous resection of (Brünings)	692
——— ——— primary syphilitic lesion of (Neugass)	693
——— nasi, accessory air-cells in (C. A. Parker)	562
——— nasal septum, letter on submucous resection (Freer)	701
Sequestrum, free, in nostril (Koenig)	121
Sigmoid sinus thrombosis (A. Logan Turner)	485
Silver nitrate, interstitial injections for tonsillar hypertrophy (Goodale)	698
Sinus phlebitis, ligature of jugular, etc. (Dundas Grant)	335
——— thrombosis, infective (J. D. Richards)	220
——— ——— fatal (A. Knapp)	276
——— ——— (W. R. Dalney)	454
Sinusitis, influenzal (Brindel)	416
——— pyæmia (Lewis A. Coffin)	450
Skiagrams of accessory sinuses of nose (Watson Williams)	376
Skiagraphs of sphenoidal sinus (StClair Thomson)	382
Snare, nasal (L. L. Mial)	166
Societies, proceedings of: American Laryngological	444, 514, 570, 693
——— American Laryngological, Rhinological and Otological	54, 115, 151
——— British Medical Association	393, 401, 457, 505, 545, 623
——— French Congress of Laryngology, Otology and Rhinology	416
——— French Society of Oto-Rhino-Laryngology	226
——— German Otological and Laryngological Societies	345
——— German Otological Society	339, 426
——— International Medical Congress, Sixteenth	285
——— International Congress of Tuberculosis	227
——— Laryngological Section—Royal Society of Medicine	36, 77, 140, 182, 251, 314, 373, 674
——— Laryngo-Rhinological Congress in Vienna	178
——— Otological Section—Royal Society of Medicine	98, 193, 227, 325, 483
——— Parisian Society of Laryngology, Otology, and Rhinology	49, 121, 207, 335, 564
——— South German Laryngologists, Society of	341, 632, 689
Specimen of large pedunculated fibroma (H. J. Davis)	388
——— of pharyngeal tonsil in sheep (Davis)	388
——— of supposed "cyst" (H. J. Davis)	389
Speech and writing disturbance (V. Urbantschitsch)	278
——— production, essentials of (G. Hudson Maknen)	577
Sphenoidal sinus, case illustrating surgery of (StClair Thomson)	380
——— ——— unusually large (James Donelan)	390

	PAGE
Sphenoidal sinus disease and visual disturbances (John W. Murphy)	116
Spirographs of nasal "breath pictures" (Wyatt Wingrave)	211
Stapes ankylosis, aetiology (E. Bloch)	137
Stenosis of auditory meatus (W. H. Kelson)	111
Stria vascularis, cells in deeper layer of (G. E. Shambaugh)	278
Subcutaneous induration of front of neck (E. Ward)	323
Subdural abscess (Uffenorde)	110
Subglottic hyperplasia (Herbert Tilley)	378
Submucous inflammation of larynx (John Sendziak)	66
Suppurative mastoiditis with fistula (Chatellier)	212
—— otitis, fetid (Chatellier)	211
Swimming tank, menace of (Cobb)	707
Syncope in hæmoptysis (Bosviel)	19
Synechia, treatment of (Jacques and Mathieu)	118
Syphilis, congenital, functional examination (Wanner)	436
—— and tuberculosis (Mathieu)	424
—— hypertrophic, involving fauces and epiglottis (Chappell)	694
—— of larynx, secondary (Castex)	121
Syphilitic lesions, membranous tertiary (D. Braden Kyle)	695
Syringe for use after radical post-aural operation (Urban Pritchard)	495
Syringo-bulbia, laryngeal affections in (A. Iwanoff)	638
Tabloid quinine compound (Burroughs and Wellcome)	176
Telangiectases, multiple (Parkes Weber)	140
—— (Sir Felix Semon)	141
—— (Brown Kelly)	141
—— (E. B. Waggett)	185
Temporal bone, specimens of (C. E. West)	200
—— surgery of (E. Ruttin)	437
Temporo-sphenoidal abscess and sigmoid sinus thrombosis (A. Logan Turner)	486
—— operation for (A. Logan Turner)	186
Therapeutic preparations (Down Bros., Burroughs and Wellcome, Christy)	175
—— (Bayer)	231
—— (Rouse)	232
—— (Handford and Dawson)	528
Throat, acute inflammations (J. L. Goodale)	524
Thrombo-phlebitis of cranial sinuses (v. Delsaux)	128
Thyro-arytenoid muscles, contracture of, effect on vocal pitch (Lithgow)	643
Thyro-lingual fistula (Dundas Grant)	254
—— sinus (Dundas Grant)	676
Thyroid adenoma, acute suppuration (Melandri and Leggy)	223
—— gland, congestion of (M. L. Berard)	170
—— malignant disease of (W. Trotter)	639
—— gland, tumour of (Donelan)	141
Thyrotomy, new operative method (Lafites-Dupont)	421
—— performed for tuberculous laryngitis (Harold Barwell)	41
Tone limit, upper (Hegener)	428
Tones, soft high (Hegener)	428
Tongue, black (N. Blegvad)	262
—— depressor, self-retaining (Mahu)	421
—— unilateral paralysis of (Jobson Horne)	145
Tonsil, applied anatomy (Harry A. Barnes)	704
—— lympho-sarcoma of (J. L. Goodale)	704
—— removal, in capsule (D. A. Heffernan)	394
—— new growth (C. A. Parker)	390
—— punch with hooks (Leroux)	424
—— sarcoma of (J. Edwin Rhodes)	515
Tonsillar and peri-tonsillar inflammations (Merrill)	525
Tonsillitis, acute poliomyelitis following (Kendall Emerson)	704
Tonsils, anatomy and surgery (James Hardy Neil)	513

	PAGE
Tonsils, faucial and pharyngeal, hypertrophy (E. B. Gleason)	213
——— and their relation to general health (C. P. Sylvester)	580
——— composed of mass of papillomata (A. R. Tweedie)	184
——— specimens of primary tuberculosis (Goris)	693
Trachea, removal of foreign body from (J. H. Bryan)	444
Tracheal injection of paratoxin (Labarrière)	421
——— scleroma (Emil Mayer)	573
——— wounds, infected (H. Streit)	639
Tracheotomy associated with febrile toxæmia (A. O. Bisson)	217
Tubercular perichondritis, sub-glottic (Pasquier)	567
Tuberculoma of tongue (E. M. von Eberts)	393
Tuberculosis, laryngeal (Robert Levy)	165
——— ——— and pregnancy (Wolff Freudenthal)	158
——— ——— extensive, of larynx (StClair Thomson)	43
——— ——— of larynx, lasting anæsthesia in (R. Hoffmann)	274
——— ——— and syphilis in larynx (Sir Felix Semon)	386
——— ——— of upper respiratory tract, diagnosis (Hurd)	157
——— ——— of upper respiratory tract (Geo. B. Wood)	156
——— ——— of nasal mucous membrane (Manciole)	215
——— ——— and artificial interruption of pregnancy (J. Frigyesi)	224
Tuberculous larynx, surgical emergencies (C. P. Grayson)	574
——— disease of larynx (Dan McKenzie)	686
——— tumour of nose and maxillary antrum (Guyot)	634
Tumour in cerebello-pontine angle (Kander)	634
——— of ascending process of superior maxilla (Grossard)	210
——— of naso-pharynx (Furniss Potter)	44
——— of neck (Jobson Horne)	96
——— of right lobe of thyroid gland (James Donelan)	96
Tumours, malignant, of accessory sinuses (Manasse)	634
——— of naso-pharynx (F. R. Nager)	635
Turbinals, morphology of (J. M. Ingersoll)	693
University of Naples, report (Trifiletti)	280
Uvula, primary carcinoma of (Clement F. Theisen)	161
——— ——— epithelioma of (James F. McCaw)	162
Vapour, hot sulphur, for trachea, nose and tympanum (Bosquet)	424
Vaso-motor affections in throat, ear and nose diseases (Moure and Bouyer)	425
Vertigo, laryngeal (StClair Thomson)	682
——— and tinnitus, treatment of (Trétrôp)	422
Vestibular apparatus in deafness (Pike)	596, 656
Vestibules, ablation of (George Gibson and Richard Lake)	496
Vestibulotomy (J. S. Fraser)	495
Vincent's angina (H. W. Bruce)	219
Vocal cord, growth on (H. J. Davis)	260
——— ——— hæmangioma of (O. Horn and J. Møller)	172
——— ——— regeneration of (Lamnois)	424
——— ——— tumour of (H. Pegler)	43
——— ——— cords, neoplasms of (Jobson Horne)	47
——— ——— papillated new growth of (Scanes Spicer)	192
——— ——— paralysis of (Trétrôp)	419
Voice production, essentials in (Wesley Mills)	577
" Wolf face " (Grossard)	210
X ray photograph showing Hajek's hook in sphenoidal sinus (H. J. Davis)	388
X rays in sounding and washing out frontal sinus (StClair Thomson)	253

AUTHORS.

	PAGE
ABERCROMBIE (Peter), extensive cellulitis of the neck, further notes	44, 680
——— perforation of soft palate	681
ADAM (James), atrophic rhinitis	563
ALBRECHT (W.), radiography in diagnosis of accessory sinus disease	268
ALT (Ferdinand), microscopic preparations of labyrinth suppuration	433
——— operative treatment of otogenic facial paralysis	438
BABER (Cresswell), megaphone	128
——— soft malignant growth of the turbinated body	98
BALLANCE (Chas. A.), intracranial complications of middle-ear suppuration	545
BARÁNY, noise apparatus	363, 428
BARBIER, <i>Maladies du Nez, et du Larynx</i> (review)	526
BARLATIER, laryngostomy and tracheo-laryngostomy	365, 411, 475, 649
BARNES (Harry A.), applied anatomy of tonsil	704
——— prophylaxis of post-operative diphtheria	61
BARR (J. Stoddart), optic neuritis in diseases of the middle ear	174
——— paralysis of sixth cranial nerve	553
——— partial grafting	492
BARWELL (Harold), congenital occlusion of posterior naris	684
——— extreme form of septal deflection	40
——— hypo-pharyngoscopy	169
——— necrosis of arytenoid cartilage	146, 182
——— symmetrical nodules on cords	79
——— thyrotomy performed for tuberculous laryngitis	41
BAUMGARTEN, coryfin	705
BAZETT (Henry), a fatal case of angio-neurotic oedema	219
BECK (E. C.), epidemic pneumococcal catarrhal disease	126
BELLOTTI, primary tumours of nasal sinuses	270
BÉRARD (M. L.), congestion of thyroid gland	170
BÉRARD (Léon), <i>Corps Thyroïde, Myxœdèmes, etc.</i> (review)	584
BERRY (James), treatment of goitre	21
BEZOLD (Professor), death of	585
BEZOLD (Fr.), <i>Text-book of Otology</i> , translated by Hollinger (review)	280
BIAGGI, cancer of larynx	218
BICHATON, painful spasm of œsophagus	453
——— pemphigus of mucous membrane	424
BIRKETT, history of medicine in the Province of Quebec	144
BISSON (A. O.), tracheotomy in slight respiratory obstruction	217
BLAKE (Clarence J.), purulent affection of labyrinth	117
BLAU (A.), serous meningo-encephalitis	221
BLEGVAD (N.), black tongue	262
BLOCH (E.), ætiology of stapes ankylosis	437
BLODGETT, electrical attachment for Politzer bag	454
BLUM, painful spasm of œsophagus	453
BLUNEL (K.), collapse induration of apex in nasal obstruction, diagnosis from pulmonary tuberculosis	705
BONAIN, general anæsthetics for short operations	418
BOND (T. W.), malignant growth behind cricoid	322
BOSQUET, hot sulphur vapour for trachea, nose and tympanum	424
BOSVIEL, rôle of syncope in hæmoptysis	49
BOULAY, pharyngeal paræsthesia	420
BOURGOIS, otitic thrombophlebitis of cavernous sinus	423, 707
BOUVILLOIS, resection of nasal septum	417
BOUYER, vaso-motor affections in throat, ear and nose diseases	425
BOWEN (W. H.), pneumococcal otitis media	275

	PAGE
BRINDEL (A.), Guide Pratique des Maladies de la Gorge, du Larynx, des Oreilles et du Nez (review)	456
BRINDEL, influenzal sinusitis	416
BROECKAERT (Jules), surgical treatment of hypertrophy of nose	271
BRONNER (Adolph), purulent otitis media in secondary syphilis	197
BROPHY (Truman W.), cleft palate	165
BRUCE (H. W.), Vincent's angina	219
BRÜHL, microscopical demonstration on oto-sclerosis	433
BRÜNINGS, principles of illuminating endoscopic tubes	632
—— submucous resection of nasal septum	692
BRUNN (v.), disinfection of skin	279
BRYAN (J. H.), removal of foreign body from trachea	444
BRYANT (Sohier), chronic middle-ear deafness	133
—— otitis media catarrhalis chronica	164
—— "piano-string" theory of basilar membrane	455
BUCKLIN (C. A.), hypertrophic nasal catarrh and complications	171
BURGER (H.), Ménière's disease depending on inflammation of nasal accessory sinuses	279
BURT (Hamilton), deviated septum and phthisis	322
CABOCHE (Henry), early antrotomy	453
CAMPBELL (Harry), on treatment (review)	583
CANYARD, œsophagoscopy	420
CARGILL (L. V.), abscess of left cerebral frontal lobe	379
CARTAZ, Maladies du Nez et du Larynx (review)	526
CASSELBERRY (W. E.), recurrent and abductor paralysis	520
CASTEX, deaf-mutism	424
—— leprous lesions in nasal fossa, palate and larynx	49
—— Maladies du Nez et du Larynx (review)	526
—— parasyphilis of larynx	297
—— partial laryngectomy by lateral opening	421
—— secondary syphilis of larynx	121
CATHCART, deflected septum	688
CAUZARD, acute fistulous frontal sinusitis	209
—— hemophilia	210
—— instruments for œsophagoscopy and bronchoscopy	50
—— naso-pharyngeal polypus	207
CHAPPELL (W. F.), hypertrophic syphilis involving fauces and epiglottis	694
CHATELLIER, fetid suppurative otitis	211
—— otitic septicæmia	211
—— pseudo-Bezold mastoiditis	212
—— severe otitic pyæmia	212
—— suppurative mastoiditis with fistula	212
CHAVANNE, clinical notes on Ménière's disease	422
—— foreign body in maxillary antrum	417
CHEATLE (Arthur), fracture through temporal bone	107
CITELLI, primary tumours of nasal sinuses	270
(LAOUE, suppurative meningitis of otitic origin	398
CLARK (J. Payson), anomalous folds in naso-pharynx	452
—— papilloma of larynx in children	575
COBB, menace of the swimming tank	707
COFFIN (Lewis A.), sinusitis pyæmia	450
COLLET, caseous sinusitis	420
—— laryngeal symptoms in Friedreich's disease	419
CONNAL (J. Galbraith), abnormal pulsating vessels in pharynx	130
—— purulent otitis media with involvement of sigmoid sinus	343
CORNET, oto-sclerosis and auto-intoxication	424
—— thrombo-phlebitis of lateral sinus	568
CRAIG (R. H.), complete occlusion of both anterior nares	396
CROCKETT (E. A.), hæmorrhage following removal of tonsils	265
CROOM (D. H.), formic acid in diphtheria	580

	PAGE
CROWE (H. Warren), Consumption (review)	527
CRUET, Hygiene and Therapeutics of Diseases of the Mouth (review)	61
CUNNINGHAM (H. H. B.), deafness from epidemic meningitis	193
DABNEY (W. R.), sinus thrombosis	454
DARLING (John M.), cytological examination of discharge in middle-ear and maxillary sinus suppuration	504
DAVIS (H. J.), new adenotome	192
— extreme deviation of bony septum (?)	188, 389
— growth on left vocal cord	260
— nasal obstruction from a cyst on floor of inferior meatus	261
— specimen of supposed cyst	389
— specimens showing pharyngeal tonsil in sheep	388
— specimen of large pedunculated fibroma	388
— X-ray photograph of Hajek's hook in sphenoidal sinus	388
DAWSON (Bertram), Röntgen rays in diagnosis of stricture of œsophagus	125
DELACOUR, laryngeal tuberculosis, mono-iodised guaiacol	452
DELAVAN (D. Bryson), recurrent and abductor paralysis, peripheral	518
DELSAUX (V. P.), frontal sinusitis complicated by suppuration in middle-ear	271
— thrombo-phlebitis of cranial sinuses	128
DENCH (E. B.), otitic brain abscess	275
DENKER, demonstration of ear models	431
— model showing mechanism of ossicles	435
DONELAN (James), aphonia	190
— effects of adenoids on development of jaws and septum	252
— ethmoidal and (?) sphenoidal suppuration	390
— intra-nasal hypertrophy with headaches and continual sweating	142
— laryngeal growth	251
— specimen and microscopic sections of tumour of thyroid gland	141
— tumour of right lobe of thyroid gland with dysphagia, right recurrent paralysis and paresis of left tensors	96
— unusually large sphenoidal sinus	390
DOWNIE (Walker), subcutaneous injection of paraffin in nose	563
DUPOND, epithelioma of naso-pharynx	418
— larynx and accidents of occupation	453
DUPUY (Homer), pathologic relation between frontal sinus and affections of eye	268
EAGLETON (W. P.), v. Stein's symptom in labyrinthine suppuration	63
EBERTS (E. M. von), tuberculoma of tongue	393
EICHHORN (v.), fulguration in laryngology	689
EICKEN (von), complications in diseases of accessory sinuses of nose	691
— saliva in the nose	692
EMERSON (F. P.), Rosenmüller's fossæ	399
EMERSON (Kendall), acute poliomyelitis following tonsillitis	704
ESCAT, clinical rhinometry	425
— functional and trophic aural disturbance in herpes of trifacial	425
EVANS (Arthur), carcinoma of arytenoid cartilage	689
— specimen of leprosy of larynx	78
FAGGE, branchial sinus from neck to external auditory meatus	198
FALCONE (Robert), sinusiti frontali (review)	282
FALLAS (A.), phlegmons of neck, bucco-pharyngeal	125
FELIX (Eugene), laryngeal paralysis in goitre	126
FISH (Henry Manning), thirty-six cases of optic neuritis (<i>concluded</i>)	26
FORSELLES, AF. (Arthur), early diagnosis in empyema of mastoid	276
FOX (Clayton), anosmia, dryness and crustings of nose	17
— laryngeal paralysis for diagnosis	319
FOY (R.), functional nasal impotence	337
FRASER (J. S.), chronic inflammatory œdema of submucous tissues of nose	402
— patient after vestibulotomy	495
— preparations showing development of nasal polypi	564

	PAGE
FREER (Otto), letter on submucous resection of nasal septum	701
FRENCH (J. Gay), fracture of walls of frontal sinuses	684
FREUDENTHAL (Wolff), pregnancy and laryngeal tuberculosis	158
FREY (Hugo), malformations of the organ of hearing	435
FRIGYESI (J.), artificial interruption of pregnancy in tuberculosis	224
FURET, mastoiditis and diabetes	50
GALEBSKY, intra-tracheal injections in chronic diseases of the lungs	125
GALLAHER (Thomas J.), modern surgery of the faucial tonsil	151
GALLEMAERTS (E.) and DELSAUX (V.), double frontal sinusitis complicated by suppuration in left middle ear	271
GAUDIER, Bier's method in oto-rhino-laryngology	420, 526
—— brain abscess of otitic origin	337
GAULLIEUR (L'Hardy), Pignet's numerical index in adenoid subjects	171
GAULT, treatment of ozæna	417
GAVELLO, cancer of larynx	218
GEIGEL, function of auricle	128
GERBER, investigation	342
—— " laryngitis nodulosa "	706
GIBSON (George), ablation of both vestibules	496
GILBERT (Paul), abscess of right temporal lobe	582
GLEASON (E. B.), treatment of hypertrophy of tonsils	213
GEILTMANN (J. W.), recurrent and abductor paralysis, central	517
GLOVER (Jules), bilateral central deafness	398
—— development of nasal septum and operation for adenoids	417
—— hyoido-thyrotomy	426
GOADBY (K. W.), bacteriological examination of antrum suppuration	626
GOODALE (J. L.), interstitial injections of silver nitrate	698
—— local treatment of acute inflammations of throat	524
—— lympho-sarcoma of tonsil	704
GORIS, mistaken diagnosis which led to omission of operation	705
—— radical operation on beginning sarcoma of nasal septum	633
—— specimens of primary tuberculosis of tonsils	693
GRACE (R.), treatment of hay fever	637
GRANT (Dundas), use of bougies for dilating frontal sinus infundibulum	513
—— median cervical fistula	150
—— epithelioma of larynx extending on to pharyngeal wall	191
—— epithelioma of fauces	151
—— of left tonsil, faucial pillar and uvula	90
—— extrinsic epithelioma of larynx	261
—— ——— and hypo-pharynx	674
—— Killian's operation for chronic suppuration of frontal sinus	324
—— congenital laryngeal stridor	321
—— lupoid ulcer on floor of vestibule of nose	321
—— lupus of larynx and fauces	190
—— large post-nasal polypus	316
—— presidential address (abstract)	674
—— "radical" operation with preservation of membrane and ossicles	201
—— retrospect of otology	6
—— sinus phlebitis, ligation of jugular, etc.	335
—— chronic suppuration of antrum; operation through meatus	90
—— thyro-lingual fistula treated by electrolysis	254
—— sinus	676
—— unilateral nerve-deafness	201, 330
—— hysterical nerve-deafness	329
GRASMANN, disinfection of hands	224
GRAY (Albert), specimens and photographs of pathological conditions in labyrinth	199
GRAY (Albert A.), stereoscopic photographs of anatomy of labyrinth of reptiles, birds and mammals	501

	PAGE
GRAYSON (Charles P.), surgical emergencies associated with tuberculous larynx	574
GREEN (Stanley), laryngeal growth for diagnosis	256
GRIMMER (George K.), partial occlusion of both anterior nares by a cutaneous web	183
GROEDEL, instantaneous Röntgen photography	279
GROSSARD, complete adhesion of soft palate to pharynx	210
—— " wolf face "	210
—— tumour of ascending process of superior maxilla	210
GUISEZ, circular electrolysis in cicatricial contractions of œsophagus	123
—— large crico-tracheal polypus removed by direct tracheoscopy	338
—— epithelioma of left nasal fossa	564
—— direct laryngoscopy and tracheoscopy	565
—— actual results of œsophagoscopy	159
—— the value of œsophagoscopy from a diagnostic and therapeutic point of view	267
—— extraction of three artificial dentures by œsophagoscopy	122
—— spasms of œsophagus	123
GUTHRIE (Thos.), development of middle ear and its contents	511
GUYOT, tuberculous tumour of nose and maxillary antrum	634
HALASZ (H.), value of negative pressure in oto-rhinology	277
HALL (de Havilland), aphonia	189
HALSTED (Thomas H.), experience with bronchoscope, œsophagoscope and gastroscope	145
HANDLEY (Sampson), complete resection of pharynx with laryngectomy	265
HANNA (Henry), cavernous sinus thrombosis	364
HANSBERG, congenital laryngeal webs	706
HARDIE (T. Melville), abscess of larynx	572
HARMER (W. D.), pulsating angioma of nose	391
HARRIS (Thos. J.), branchiogenetic cyst	574
—— subglottic papilloma	573
HARTMANN, closure of retro-auricular openings	440
HAUN, narcosis with warm chloroform	128
HAUTANT (A.), chronic cocaineism through the nose	338
—— fistula of external semi-circular canal	565
HEFFERNAN (D. A.), removal of tonsil in capsule	394
HEGENER, thin celloidin sections through temporal bone	144
—— estimation of number of vibrations of soft high tones	128
—— of upper tone limit	128
HÉLAT, permeatal exploration of maxillary sinus	525
HELLAT (P.), loss of oxydase of saliva as a cause of disease	395
HERSCHEL, decalcification process in petrous temporal bone	143
HILL (W.), adhesion of soft palate to pharynx	392
—— epithelioma of pharynx, œsophagus and larynx	685
—— tuberculosis of larynx with perichondritis	151
HOFFMANN (R.), lasting anæsthesia in tuberculosis of larynx	274
HOLMES (Christian R.), hysteria of the ear	58
HOPE (George B.), rheumatism through tonsillar infection	698
HOPKINS (Fred. E.), adrenalin in causation of arterio-sclerosis	516
HORN (O.), hamangioma of vocal cord	172
—— instantaneous Röntgen photography	279
HORNE (Jobson), autograph letter by Johann Nepomuk Czerniak	251
—— disease of epiglottis	93
—— diffuse gummatous infiltration of nose	48
—— intrinsic laryngeal growth	688
—— lupus of epiglottis	319
—— pathogenesis of pachydermialaryngis verrucosa et diffusa	383
—— preparations illustrating diseases of trachea	95
—— sarcoma, specimens	314

	PAGE
HORNE (Jobson), symmetrical neoplasms of vocal cords	47
——— tumour of neck	96
——— unilateral paralysis of tongue	145
HORSFORD (Cyril), baritone voice in a girl	149
——— fibroma removed from vocal cord	85
——— (?) new instrument to facilitate intra-laryngeal operations	85
——— new instrument for passing suture through epiglottis	260
HOWELL (C. M. H.), paralysis of palate and vocal cords in tabes dorsalis	214
HUNT (J. R.), herpetic inflammations of the geniculate ganglion	173
——— otalgia	277
HURD (Lee M.), differential diagnosis of tuberculosis and syphilis of upper respiratory tract	157
——— adeno-sarcoma of maxillary antrum	162
HUTCHISON (Arthur), bilateral sarcoma of upper maxilla	81
INGERSOLL, (J. M.), morphology of turbinals	693
IVANOFF (A.), laryngeal affections in syringo-bulbia	638
JACKSON (Chevalier), safty-pin closer	165
——— septal perforations	215
JACKSON (J. M.), exophthalmic goitre	266
JACQUES, pathological anatomy and treatment of naso-pharyngeal fibrous polypi	417
——— treatment of certain intractable synechie	418
——— iodide treatment of tubercular and lupoid ulcers	419
——— case of peri-tonsillar abscess	419
JAKINS (Percy), meningitis subsequent to mastoid operation in a tuber- culous subject: lumbar puncture	34
JAUQUET (E.), naso-pharyngeal polypus	124
JONES (Buckland), case for diagnosis	392
JONES (Ernest), cell enumeration in lumbar puncture	526
JONES (Lawrence), gumma of larynx	80
JURASZ, remarkable anomaly of naso-pharynx	356
KANASUGI (H. E.), Topographical Surgical Anatomy of Mastoid Region (review)	640
KANDER, tumour in cerebello-pontine angle	634
KELLY (Brown-), direct examination of larynx, trachea and œsophagus	514
——— multiple telangiectases	141
KELSON (W. H.), bleeding polypus of nose	93
——— bony outgrowths from the maxilla and mandible	259
——— stenosis of auditory meatus	111
——— swelling of arytenoid	320
——— ulceration of nose	151
KER (Claude B.), formic acid in treatment of diphtheria	580
KERLEY (Charles G.), diathetic conditions in diseases of throat and nose in children	54
KERRISON (P. D.), diphtheria, complicated by acute purulent otitis media, mastoiditis and infective sinus thrombosis	221
KILLIAN, diseases of accessory sinuses of nose in scarlet fever	690
KING (Gordon), report of cases	638
KIRCHNER, stand for operative practice on the ear	443
KNAPP (A.), fatal cases of sinus thrombosis	276
——— otitic meningitis	220
KNAUSE (F.), mastoiditis with brain complications	455
KOENIG, bilateral growths of floor of nasal fossa	569
——— free sequestrum in right nostril	121
——— myeloid sarcoma of right nasal fossa	53
KÖRNER, carcinoma of hypo-pharynx	689
——— conservative treatment of chronic middle-ear suppuration	426
——— oculo-motor and recurrent paralyses	633

	PAGE
KREBS (J.), foreign bodies in nose giving rise to empyema of maxillary antrum	216
KRETSCHMANN, operative treatment of deformities of nasal septum	141
KROTSCHMNER, disturbance of equilibrium in one-sided disease of labyrinth	219
KÜSTNER (W.), tumours of auditory nerve	171
KYLE (D. Braden), membranous tertiary syphilitic lesions	695
KYLE (John Johnson), ear symptoms in arterio-sclerosis	115
—— Manual of Diseases of the Ear, Nose and Throat (review)	528
LABARRIÈRE, epithelioma of mastoid cured by X rays	119
—— maxillary sinusitis and gangrene of lung	418
—— tracheal injection of paratoxin	121
LACK (Lambert), laryngeal growth for diagnosis	256
—— lupus erythematosus	688
LAFITES-DUPOXT, new operative method in thyrotomy	121
LAKE (Richard), ablation of both vestibules	196
—— sudden deafness during treatment for tertiary syphilis	104
LANGWORTHY (H. G.), adenoids and tonsils	265
LANNOIS, clinical notes on Ménière's disease	422
—— regeneration of vocal cord	124
—— villous tumour of larynx	421
LAURENS (Paul), abscess of brain with frontal sinusitis	339
—— angioma cured by electrolysis	53, 121
—— laryngeal leucoplasmia	121
—— pyæmia of otitic origin	569
—— septic meningitis	123
—— tumour of piriform sinus	122
LAVRAND, polypi from naso-pharynx	117
LAWRENCE (L. A.), deaf-mute apparently regaining hearing	110
—— foreign body in ear	332
LEGG (T. P.), acute suppuration in thyroid adenoma due to <i>Bacillus typhosus</i>	223
LELAND (G. A.), periosteal flap	525
LERMOYEZ, asepsis of needles for paracentesis	122
—— compressed air ventilator for hot-air apparatus	124
—— classical technique of adenotomy	123
—— statistics and treatment of acute otitis media	422
LEROUX (R.), paraffin in nasal prosthesis	171
—— tonsil punch with hooks	424
LENHARTZ, Calmette's reaction and von Pirquet's tuberculin test	127
LEVY (Robert), anti-tubercle screen	166
—— laryngeal tuberculosis	165
LINDT, tuberculosis of nose	439
LITHGOW, contracture of thyro-arytenoid muscles and vocal pitch	613
LUC, local anæsthesia in radical operation for suppuration of maxillary antrum	118
—— mastoid, post-operative methods of Eeman and Roy	335
—— epithelioma of left vocal cord	566
—— chronic frontal antritis	566
—— acute fronto-ethmoido-maxillary suppuration	566
—— acute mastoiditis in diabetic	51
—— periostitis of temporal bone	123
MCBRIDE (Peter), chronic inflammation of pharynx and naso-pharynx	505
—— middle-ear suppuration: phlebitis of lateral sinus: cerebellar abscess	183
—— presidential address	98
MCCAW (James F.), case of primary epithelioma of uvula	162
McKENZIE (Dann), Diagnosis in Diseases of the Throat, Nose and Ear (review)	226

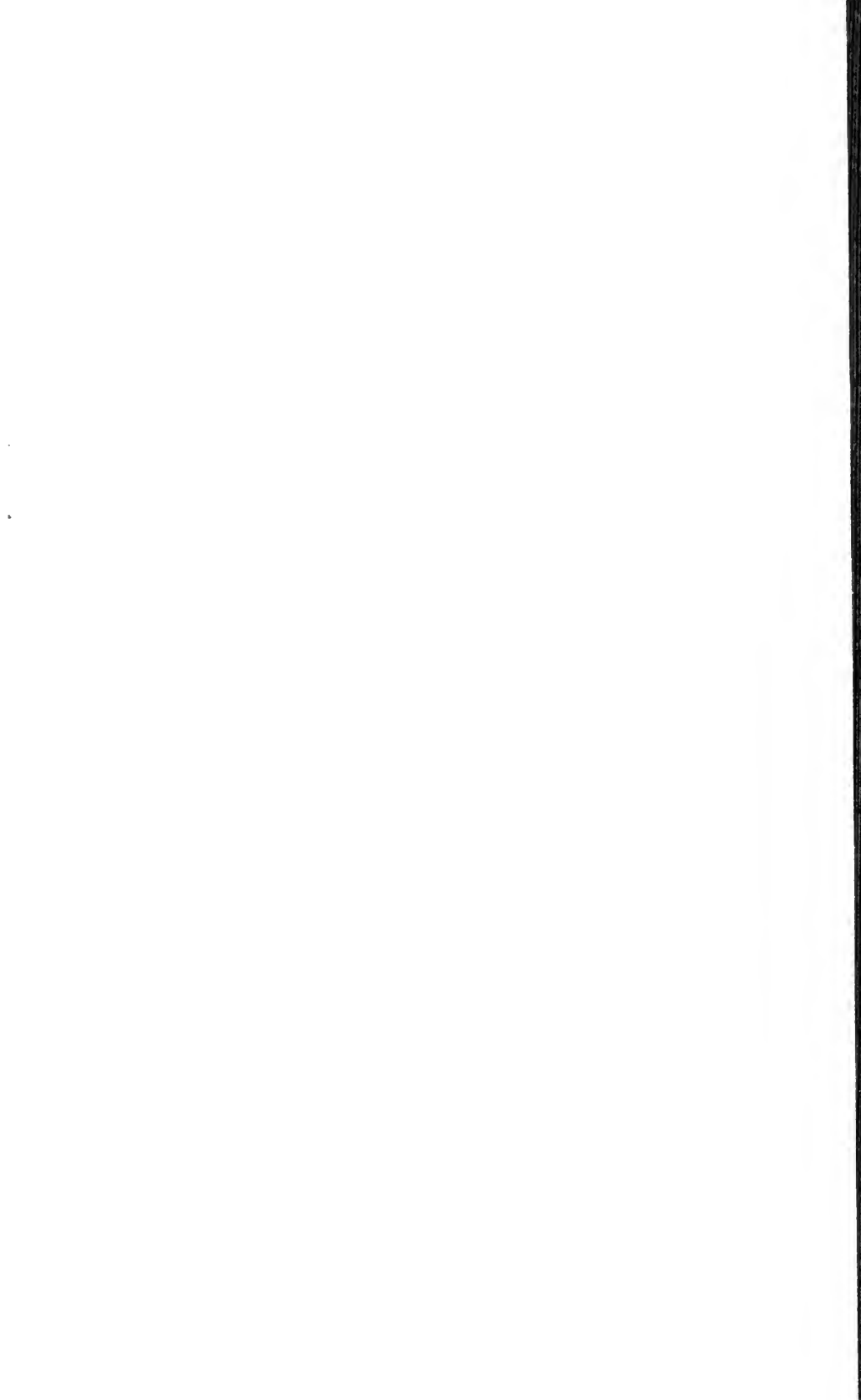
	PAGE
McKENZIE (Dan), digital examination of nose	248
——— endothelioma removed from hard palate	159
——— fistulous opening in middle line of neck	38, 150
——— hamatoma with abscess of septum	258
——— malignant disease of larynx	383
——— mucocele of anterior ethmoidal cell	315
——— paresis of vocal cord	37
——— tuberculous disease of larynx	686
MADER (L.), experiences of Killian's radical operation	62
MAGNE (P.), benign tumour of lower pharynx	589
MAHU, compressed-air ventilator for hot-air apparatus	124
——— external prosthesis with cold paraffin	124
——— self-retaining tongue depressor	421
——— peri-sinusitis of lateral sinus	423
MAKUN (G. Hudson), essentials of speech production	578
MANASSE, exostoses of internal auditory meatus	437
——— malignant tumours of accessory sinuses	634
MANGIOLI, tuberculosis of nasal mucous membrane	215
MANSON (J. S.), open safety-pin in œsophagus of child	223
MARC'HADOUR (Le), pharyngeal paresthesia	420
MARTINDALE (W. Harrison), <i>Extra Pharmacopœia</i> , 13th edition (review)	640
MARX, demonstration of osteomata of accessory sinuses	439
——— injury inflicted on labyrinth by rays	434
MASSIER, tubercular perichondritis of larynx	420
MATHIEU, treatment of certain intractable synechiæ	418
——— syphilis and tuberculosis	424
MAYER (Emil), tracheal scleroma	573
MEAD (L. G.), exophthalmic goitre	266
MELANDRI (F. G.), acute suppuration in thyroid adenoma due to <i>Bacillus typhosus</i>	223
MERMOD, <i>ozæna</i> , unilateral	637
MERRILL (W. H.), atypical cases of tonsillar and peri-tonsillar inflam- mations	525
MEYER (A.), leukæmic affection of larynx; preparations	634
MIAL (L. L.), nasal snare	166
MIGNON, calculus removed from tonsil	419
MILLER (Charles C.), <i>Cosmetic Surgery</i> (review)	400
MILLIGAN (Wm.), demonstration of specimens	114
——— epithelioma of middle ear, traumatic	199
MILLS (Wesley), essentials in voice production	577
MINK (P. J.), causation of septal deviations	270
MOLLER (J.), case of hamangioma of left vocal cord	172
MOSHER (Harris P.), form of hard palate	447
——— direct examination of larynx and upper end of œsophagus	273
MOTY, cervical œsophageal fistula	267
MOURE (E. J.), <i>Guide Pratique des Maladies de la Gorge, du Larynx, des Oreilles et du Nez</i> (review)	456
——— vaso-motor affections in throat, ear and nose diseases	425
MÜLLER (Fr.), wound clip for ear operations	440
MURPHY (John W.), visual disturbances in disease of sphenoidal sinuses	116
MYLES (Robert C.), faucial tonsil	119
NAGER (F. R.), labyrinth sequestra in middle-ear carcinoma	435
——— tumours of the naso-pharynx	635
NAVRATIL (E. von), surgical treatment of laryngeal stenosis	239
NEL (James Hardy), anatomy and surgery of tonsils	513
NEUFELD (L.), laryngeal spasm in adult	397
NEUGASS, primary syphilitic lesion of nasal septum	693
NEWCOMB (James E.), hæmorrhage following quinsy	289, 699
NILES (R. M.), chronic pharyngitis	169
NOBECOURT (P.), hypertrophy of the pharyngeal lymphoid tissue	636

	PAGE
NOURSE (Chichele), epithelioma of tongue and fauces	147
——— retrospect of otology	6
——— bilateral frontal sinusitis after operation	86
——— sarcoma of nose	146
NOWOJNY (F.), bronchoscopy and bronchoscopic treatment in bronchial asthma	219
OXODI, brain complications of nasal diseases	564
OPPIKOFEK (E.), calculus of antrum of Highmore	62
OUSTON (T. G.), operation for depressed fracture of nose	557
PARKER (C. A.), accessory air-cells in septum nasi	562
——— bleeding polypus removed from septum	87
——— infiltration of nasal cavities	257
——— new-growth of right tonsil	390
——— malignant disease of right maxillary antrum	679
PASQUIER, botryomycosis of auricle	567
——— sub-glottic tubercular perichondritis	567
PASSOW, Beiträge zur Anatomie, etc. (review)	283
PATERSON (D. R.), crossed abducens paralysis in cerebellar abscess	197
——— removal of open safety-pin in œsophagus of a child	223
PEGLER (L. H.), bleeding polypus removed from septum	87
——— œdematous fibroma removed from vocal cord	89
——— tumour of vocal cord	43
PERMEWAN (W.), infection of lateral sinus	487
PETERS (E. A.), functional paresis of palate and cords	15
PHILLIPS (Wendell C.), angioma	164
——— œdematous nasal polyp	163
PIAGET, general anæsthesia by ethyl chloride	424
PIFFL (Otto), foreign body in Eustachian tube	454
PIKE (Norman H.), vestibular apparatus in deafness of non-suppurative origin	596, 656
POLITZER, anatomical condition of foot-plate of stapes in oto-sclerosis	432
PONTHIEVE, naso-pharyngeal cause for chorea	417
PORTER (W. G.), keratosis laryngis circumscripta	310
——— unusual sequel to radical mastoid operation	491
POTTER (Coubro), atresia of naso-pharynx	77
POTTER (Furniss), hyperplasia of auricle	332
——— tumour removed from naso-pharynx	44
POWERS (G. H.), case of caries of middle ear	399
PRICE-BROWN (J.), two interesting cases of frontal sinus disease	449, 535
PRITCHARD (Urban), syringe for use after radical post-aural operation	495
PUTELLI (F.), examination of hearing of railway employees	223
RAOULT, mastoiditis with aberrant cells	425
——— sarcoma of nasal orifice and frontal sinus	416
——— septicæ-pyæmia of otitic origin	425
RHODES (J. Edwin), sarcoma of tonsil	515
RICE (Clarence C.), recurrent and abductor paralysis, symptomatology	519
RICHARDS (John D.), infective sinus thrombosis	220
——— mastoiditis in diabetic subjects	278
RIESER (W.), laryngeal complications of typhoid fever	272
RIVERS (W. C.), non-tuberculous intra-nasal and post-nasal abnormalities	215
ROBINSON (Betham), endothelioma from upper part of œsophagus and trachea	184
——— extensive cicatricial changes in pharynx and larynx, syphilitic	184
——— polypoid growth from larynx (lymphangioma)	255
ROE (John O.), methods of opening maxillary antrum	570
ROGERS (J.), treatment of chronic stenosis of the larynx and trachea	273
ROLLESTON (J. D.), relapses in diphtheria	61
ROSE (F. A.), breastbone of chicken impacted in larynx	39
ROWAN (J.), optic neuritis in diseases of middle ear	174

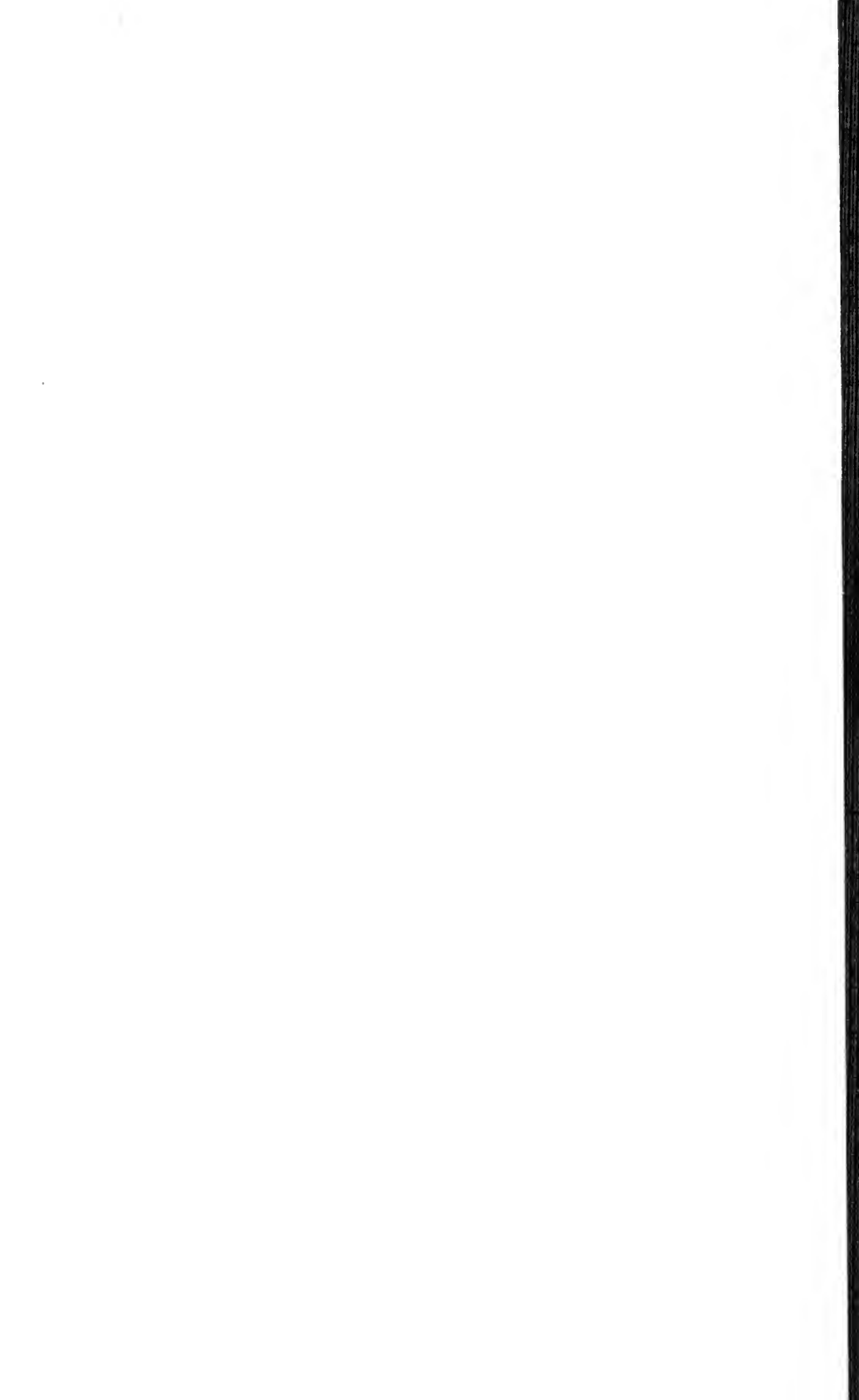
	PAGE
RUTTIN (E.), dilatation of ductus cochlearis	434
——— surgery of temporal bone	437
SANTI (P. de), nasal obstruction	258
SARGNON, laryngostomy and tracheo-laryngostomy	365, 411, 475, 649
SCHÄFER (F.), chair for consulting-room	635
SCHAEFFER (K. L.), importance of middle-ear apparatus for hearing	429
SCHAEFFER, Beiträge zur Anatomie, etc. (review)	283
SCHIEBE, conservative treatment of chronic middle-ear suppuration	427
SCHÖNEMANN, demonstration of five flat models of human ear	432
——— reports from private clinic	224
SCHROEDER (H.), otitic purulent sinus thrombosis without fever	221
SCOTT (Sydney), extirpation of labyrinth	102
——— histological preparations of human labyrinth	200
——— acute internal hydrocephalus	455
——— operative surgery of labyrinthitis	201
——— otitic meningitis	502
SEBILEAU, hyoido-thyrotomy	426
SEHLBACH (Zella St. Bl.), cessation of menses with angina	266
SEIFERT (Otto), Geschichte der Laryngologie in Würzburg (review)	225
——— paraffin prothesis in rhinology	215
SEMON (Sir Felix), case for diagnosis	677
——— (?) combination of tuberculosis and syphilis in larynx	386
——— epithelioma of left vocal cord	676
——— hysteria with unusual laryngeal manifestations	384
——— pneumococcic invasion of throat	636
——— multiple telangiectases	141
SENDZIAK (John), submucous inflammation of the larynx	66
SESSOUS (K. L.), importance of middle-ear apparatus for hearing	429
SHAMBAUGH (G. E.), origin of cells found in deeper layer of stria vascularis	278
SHEARER (T. L.), malignant tumours of larynx	274
SICRE (A.) and VAQUIER (L.), naso-pharyngo-laryngeal syndrome	394
SIEBENMANN (Fr.), acoustic experiments	433
——— specimens of circumscribed labyrinthitis	433
——— Text-book of Otology for Physicians and Students, translated by HOLLINGER (review)	280
——— deafness in acute osteo-myelitis	222
SIMPSON (W. K.), prolonged intubation	697
SLATER (A. B.), diphtheria of skin	223
SLUDER (G.), sphenopalatine ganglion in nasal headaches	524
SOMMERVILLE (D.), treatment of syphilis with mercural	279
SPICER (Scanes), laryngeal disease for diagnosis	46
——— papillated new growth affecting both vocal cords	192
——— intrinsic neoplasm of vocal cord	255
SPICER (Frederick), laryngeal disease	46
SPIRA (Rafael), extra-dural abscess from middle-ear disease	14
STEPHENSON (Sydney), The Ophthalmoscope, vol. vi, No. 4 (review)	283
STEWART (F. J.), mucocele of frontal sinus	185
STOKES (W. R.), epidemic pneumococcal catarrhal disease	126
STRAZZA (Prof. G.), laryngeal stenosis due to amyloid degeneration	271
STREIT (H.), healing of infected tracheal wounds	639
STUART-LOW, complete closure of anterior nares	147
——— operation for angina Ludovici	382
——— recurring epistaxis in nasal epithelioma	687
——— radical maxillary antrum operation	148
——— rhino-scleroma	687
STUCKY (J. A.), septic thrombosis of cavernous sinus	529
SWAIN (Henry L.), cysts, abscesses and œdema of epiglottis	696
SYLVESTER (C. P.), tonsils and their relation to general health	580
SYME (W. S.), Bezold's mastoid empyema	327

	PAGE
SYME (W. S.), lateral sinus disease	325
—— injury to pharyngeal portion of Eustachian tube	328
—— stereoscopic photographs, frontal sinus disease	311
TANDLER (J.), operative exposure of jugular bulb	277
TEETS (C. E.), malignant tumours of larynx	271
TEXTER, point of insertion of naso-pharyngeal polyp	117
THEISEN (Clement F.), cyst of frontal sinus	449
—— primary carcinoma of uvula	161
THOMSON (StClair), abscess in left cerebral frontal lobe	379
—— double frontal sinus operation	17
—— deviation of septum	382
—— laryngeal vertigo	682
—— leprosy showing lesions in soft palate and pharynx	188
—— mucocele of frontal sinus	143
—— radiograph to show orbito-ethmoidal and frontal cells before operation	144
—— skiagraphs of sphenoidal sinus	382
—— specific pachydermia	112
—— suppuration in maxillary antrum	557
—— surgery of sphenoidal sinus	380
—— tuberculosis of larynx	43
—— X rays in sounding and washing out frontal sinus	253
THORNTON (A.), fatality subsequent to cauterisation of inferior turbinated bodies	343
TILLEY (Herbert), antral disease	607, 623
—— "bridle" formation of larynx	78
—— congestion of vocal cord	79
—— Diseases of Nose and Throat (review)	399
—— epithelioma of vocal cord	149
—— fibrous and eccentric constriction of trachea	94
—— interarytenoid and subglottic infiltration	678
—— modified Killian operation for chronic empyema of frontal sinus	94
—— nasal syphilis	48
—— operations on frontal sinuses	261
—— specimen of large post-nasal polypus	377
—— subglottic hyperplasia	378
TILMANN, cesophageal diverticulum	343
TIXIER (Léon), hypertrophy of pharyngeal lymphoid tissue	636
TOD (Hunter), epithelioma of ear	112
—— occlusion of posterior nares	332
—— venous angioma of soft palate	187
TORMENE (Enrico), resistances of red blood-corpuscles in adenoid subjects	266
TOYNBEE (William), Vignettes of the Regency (review)	282
TRÉTIOT, acoumeter, millimetric	419
—— nasal diseases in singers	419
—— paralysis of vocal cords after influenza	419
—— treatment of vertigo, tinnitus and partial deafness	422
TRIFILETTI, University of Naples, Report	280
TROTTER (W.), malignant disease of thyroid	639
TURNER (A. Logan), mastoid operation with preservation of tympanic membrane and ossicles	490, 491
—— mucocele of accessory nasal sinuses	581
—— sigmoid sinus thrombosis	485
—— suppuration in maxillary antrum	559
—— temporo-sphenoidal abscess	486
—— and sigmoid sinus thrombosis: preparations	486
TURNER (William), abscess of left cerebral frontal lobe	379
TWEEDIE (Alex. R.), Bárány's tests to "deaf-mutes"	592
—— microscopic specimen of pulsating growth of middle turbinate body	36

	PGAE
TWEEDIE (Alex. R.), testing for nystagmus in deaf-mutes	552
—— tonsils, composed of mass of papillomata	184
UFFENORDE, subdural abscess	440
—— chondromata of nasal cavities	269
—— lateral sinus thrombosis; researches	442
UNDERWOOD (A. S.), maxillary sinus in relation to teeth	620, 623
URBANTSCHITSCH (Ernst), galvanic treatment in difficulty in hearing	443
URBANTSCHITSCH (V.), speech and writing disturbances	278
VACHER, mechanical drill in operations on ear and nose	418
VAGUIER (L.), naso-pharyngo-laryngeal syndrome	394
VERNET (A.), tubercular meningitis cured with Beranech tuberculin	175
VERNIEUWE, closed ethmoidal sinusitis	125
VOSS, salpingoscope	441
—— non-purulent inflammations of labyrinth	435
WADE (Henry), temporo-sphenoidal abscess and sigmoid sinus thrombosis; preparations	486
WAGGETT (E. B.), direct laryngoscopy, bronchoscopy and œsophagoscopy	514
—— Diseases of the Nose (review)	344
—— multiple telangiectasis	185
WAGNER (Henry L.), hyperplasia lateralis lingue	514
WANNER, functional examination in congenital syphilis	430
WARD (E.), subcutaneous induration of front of neck	323
WEBER (Parkes), multiple telangiectases	140
WEILL (G. A.), Marmorek's anti-tuberculous serum in laryngeal tuberculosis	54
WEST (C. Ernest), surgery of labyrinthitis	201
—— specimens of temporal bone	200
WESTCOTT (W. Wynn), Extra Pharmacopœia (review)	640
WHITEHEAD (A. L.), intercranial complications of middle-ear suppuration	549
WILDENBERG (van den), papillomata of larynx in children treated by Killian's direct method	173
WIESNER, fulguration by de Keating Hart method	279
WILKINSON, compulsory medical inspection of school-children	505
WILLIAMS (P. Watson), skiagrams of accessory sinuses of nose	376
—— fenestration of anterior pillars of fauces	213
—— laryngeal disease	375
—— ulceration	84
—— malignant growth of septum and naso-pharynx	373
—— models of operations for pan-sinusitis	689
—— osteoplastic method of operating on frontal sinus	553
—— pathogenesis of some forms of nasal polypi (microscopic sections)	144
WINGRAVE (Wyatt), clinical pathology of aural discharges	302, 347
—— discussion	332
—— spiographs of nasal "breath pictures"	214
WISHART (J. Gibb), repair of saddle-nose	396
WOLTKE (W. O.), specific therapy in Basedow's disease	707
WOOD (George B.), tuberculosis of upper respiratory tract	156
WYLIE (Andrew), angioma of tonsil	320
—— cervical tumours	513
—— foul breath	263
—— laryngeal case for diagnosis	149
—— treatment of innocent laryngeal growths by galvano-cautery	217
YEARSLEY (MacLeod), labyrinthine suppuration	199
—— microscopic specimen and drawing of foreign body	103
—— sequestra from necrosis of labyrinth	331
YOSHII, acoustic experiments	433
—— specimens of circumscribed labyrinthitis	433









SERIAL

$\frac{d}{dt} \left(\frac{1}{r^2} \right) = -\frac{2}{r^3} \frac{dr}{dt}$

62